

# DATASHEET - DILMP45-10(110V50HZ,120V60HZ)



Contactor, 4 pole, 45 A, 1 N/O, 110 V 50 Hz, 120 V 60 Hz, AC operation



Part no. **DILMP45-10(110V50HZ,120V60HZ)**  
 Catalog No. **109819**  
 Alternate Catalog No. **XTCF045C10A**  
 EL-Nummer (Norway) **4110196**

## Delivery program

|                                                           |                |   |                                                                                                                                                |
|-----------------------------------------------------------|----------------|---|------------------------------------------------------------------------------------------------------------------------------------------------|
| Product range                                             |                |   | Contactors                                                                                                                                     |
| Application                                               |                |   | Contactors for 4 pole electric consumers                                                                                                       |
| Subrange                                                  |                |   | Contactors up to 200 A, 4 pole                                                                                                                 |
| Utilization category                                      |                |   | AC-1: Non-inductive or slightly inductive loads, resistance furnaces<br>NAC-3: Normal AC induction motors: starting, switch off during running |
| Connection technique                                      |                |   | Screw terminals                                                                                                                                |
| Number of poles                                           |                |   | 4 pole                                                                                                                                         |
| <b>Rated operational current</b>                          |                |   |                                                                                                                                                |
| AC-1                                                      |                |   |                                                                                                                                                |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |   |                                                                                                                                                |
| at 40 °C                                                  | $I_{th} = I_e$ | A | 45                                                                                                                                             |
| at 50 °C                                                  | $I_{th} = I_e$ | A | 41                                                                                                                                             |
| at 55 °C                                                  | $I_{th} = I_e$ | A | 40                                                                                                                                             |
| at 60 °C                                                  | $I_{th} = I_e$ | A | 39                                                                                                                                             |
| <b>Contacts</b>                                           |                |   |                                                                                                                                                |
| N/O = Normally open                                       |                |   | 1 N/O                                                                                                                                          |
| Contact sequence                                          |                |   |                                                                                                                                                |
| For use with                                              |                |   | DILM32-XHI(C)...<br>DILA-XHI(V)(C)...                                                                                                          |
| Actuating voltage                                         |                |   | 110 V 50 Hz, 120 V 60 Hz                                                                                                                       |
| Voltage AC/DC                                             |                |   | AC operation                                                                                                                                   |
| Connection to SmartWire-DT                                |                |   | no                                                                                                                                             |
| <b>Instructions</b>                                       |                |   | Contacts to EN 50 012.                                                                                                                         |

## Technical data

|                                 |              |               |                                                                               |
|---------------------------------|--------------|---------------|-------------------------------------------------------------------------------|
| <b>General</b>                  |              |               |                                                                               |
| 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 60068-2-3<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               |              |               |                                                                               |

|                                                                       |                  |                 |                                                                                   |
|-----------------------------------------------------------------------|------------------|-----------------|-----------------------------------------------------------------------------------|
| 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                                                                                 |
| Degree of Protection                                                  |                  |                 | IP00                                                                              |
| Altitude                                                              |                  | m               | Max. 2000                                                                         |
| Protection against direct contact when actuated from front (EN 50274) |                  |                 | Finger and back-of-hand proof                                                     |
| Stripping length                                                      |                  | mm              | 10                                                                                |
| 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             | 18 - 6                                                                            |
| Terminal screw                                                        |                  |                 | M5                                                                                |
| Tightening torque                                                     |                  | Nm              | 3                                                                                 |
| Stripping length                                                      |                  | mm              | 10                                                                                |
| 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                                                                  |                  |                 |                                                                                   |
| 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                                                                |
| <b>Main conducting paths</b>                                          |                  |                 |                                                                                   |
| 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 EN 61140                                            |                  |                 |                                                                                   |
| between coil and contacts                                             |                  | V AC            | 440                                                                               |
| between the contacts                                                  |                  | V AC            | 440                                                                               |
| Making capacity (cos φ)                                               | Up to 690 V      | A               | 350<br>According to IEC/EN 60947                                                  |
| Breaking capacity                                                     |                  |                 |                                                                                   |
| 220 V 230 V                                                           |                  | A               | 250                                                                               |
| 380 V 400 V                                                           |                  | A               | 250                                                                               |

|                                       |             |   |     |
|---------------------------------------|-------------|---|-----|
| 500 V                                 |             | A | 250 |
| 660 V 690 V                           |             | A | 144 |
| 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 | 100 |
| 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   | 45  |
| at 50 °C                                                  | $I_{th} = I_e$ | A   | 41  |
| at 55 °C                                                  | $I_{th} = I_e$ | A   | 40  |
| at 60 °C                                                  | $I_{th} = I_e$ | A   | 39  |
| enclosed                                                  | $I_{th}$       | A   | 36  |
| Conventional free air thermal current, 1 pole             |                |     |     |
| open                                                      | $I_{th}$       | A   | 117 |
| enclosed                                                  | $I_{th}$       | A   | 105 |
| Motor rating                                              | P              | kWh |     |
| 220/230 V                                                 | P              | kW  | 16  |
| 240 V                                                     | P              | kW  | 18  |
| 380/400 V                                                 | P              | kW  | 28  |
| 415 V                                                     | P              | kW  | 31  |
| 440 V                                                     | P              | kW  | 33  |
| 500 V                                                     | P              | kW  | 37  |
| 690 V                                                     | P              | kW  | 49  |

|                           |       |     |                                                    |
|---------------------------|-------|-----|----------------------------------------------------|
| 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   | 25                                                 |
| 240 V                     | $I_e$ | A   | 25                                                 |
| 380 V 400 V               | $I_e$ | A   | 25                                                 |
| 415 V                     | $I_e$ | A   | 25                                                 |
| 440V                      | $I_e$ | A   | 25                                                 |
| 500 V                     | $I_e$ | A   | 25                                                 |
| 660 V 690 V               | $I_e$ | A   | 15                                                 |
| Motor rating              | P     | kWh |                                                    |
| 220 V 230 V               | P     | kW  | 7.5                                                |
| 240V                      | P     | kW  | 8.5                                                |
| 380 V 400 V               | P     | kW  | 11                                                 |
| 415 V                     | P     | kW  | 14.5                                               |
| 440 V                     | P     | kW  | 15.5                                               |
| 500 V                     | P     | kW  | 17.5                                               |
| 660 V 690 V               | P     | kW  | 14                                                 |

## DC

|                                 |       |   |    |
|---------------------------------|-------|---|----|
| Rated operational current, open |       |   |    |
| DC-1                            |       |   |    |
| 60 V                            | $I_e$ | A | 45 |

|       |                |   |    |
|-------|----------------|---|----|
| 110 V | I <sub>e</sub> | A | 45 |
| 220 V | I <sub>e</sub> | A | 45 |

## Current heat loss

|                                  |  |    |      |
|----------------------------------|--|----|------|
| 3 pole, at I <sub>th</sub> (60°) |  | W  | 13.2 |
| Impedance per pole               |  | mΩ | 2.7  |

## Magnet systems

|                                                                                            |          |                  |            |
|--------------------------------------------------------------------------------------------|----------|------------------|------------|
| Voltage tolerance                                                                          |          |                  |            |
| AC operated 50 Hz                                                                          | Pick-up  | x U <sub>c</sub> | 0.8 - 1.1  |
| AC operated 50/60 Hz                                                                       |          | x U <sub>c</sub> | 0.85 - 1.1 |
| Drop-out voltage AC operated                                                               | Drop-out | x U <sub>c</sub> | 0.4 - 0.6  |
| Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub>                     |          |                  |            |
| AC operated 50/60 Hz                                                                       | Pick-up  | VA               | 50         |
| AC operated 50/60 Hz                                                                       | Pick-up  | W                | 40         |
| AC operated 50/60 Hz                                                                       | Sealing  | VA               | 8          |
| AC operated 50/60 Hz                                                                       | Sealing  | W                | 2.1        |
| Duty factor                                                                                |          | % DF             | 100        |
| Changeover time at 100 % U <sub>S</sub> (recommended value)                                |          |                  |            |
| Main contacts                                                                              |          |                  |            |
| AC operated                                                                                |          |                  |            |
| Closing delay                                                                              |          | ms               | 16 - 22    |
| Opening delay                                                                              |          | ms               | 8 - 14     |
| Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal). |          | mA               | ≤ 1        |

## Rating data for approved types

|                              |  |      |                |
|------------------------------|--|------|----------------|
| Switching capacity           |  |      |                |
| Maximum motor rating         |  |      |                |
| Three-phase                  |  |      |                |
| 200 V<br>208 V               |  | HP   | 7.5            |
| 230 V<br>240 V               |  | HP   | 10             |
| 460 V<br>480 V               |  | HP   | 15             |
| 575 V<br>600 V               |  | HP   | 20             |
| Single-phase                 |  |      |                |
| 115 V<br>120 V               |  | HP   | 2              |
| 230 V<br>240 V               |  | HP   | 5              |
| 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 |  | SCCR |                |
| 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  | 125/100 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  | 150             |
| FLA 480V 60Hz 3phase                                      | A  | 25              |
| Elevator Control                                          |    |                 |
| 200V 60Hz 3phase                                          | HP | 3               |
| 200V 60Hz 3phase                                          | A  | 11              |
| 240V 60Hz 3phase                                          | HP | 5               |
| 240V 60Hz 3phase                                          | A  | 15.2            |
| 480V 60Hz 3phase                                          | HP | 10              |
| 480V 60Hz 3phase                                          | A  | 14              |
| 600V 60Hz 3phase                                          | HP | 15              |
| 600V 60Hz 3phase                                          | A  | 17              |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                   |    |                                                                    |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|--------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                   |    |                                                                    |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>    | A  | 45                                                                 |
| Heat dissipation per pole, current-dependent                                                                           | P <sub>vid</sub>  | W  | 4.4                                                                |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub>  | W  | 13.2                                                               |
| Static heat dissipation, non-current-dependent                                                                         | P <sub>vs</sub>   | W  | 2.1                                                                |
| Heat dissipation capacity                                                                                              | P <sub>diss</sub> | 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.                         |

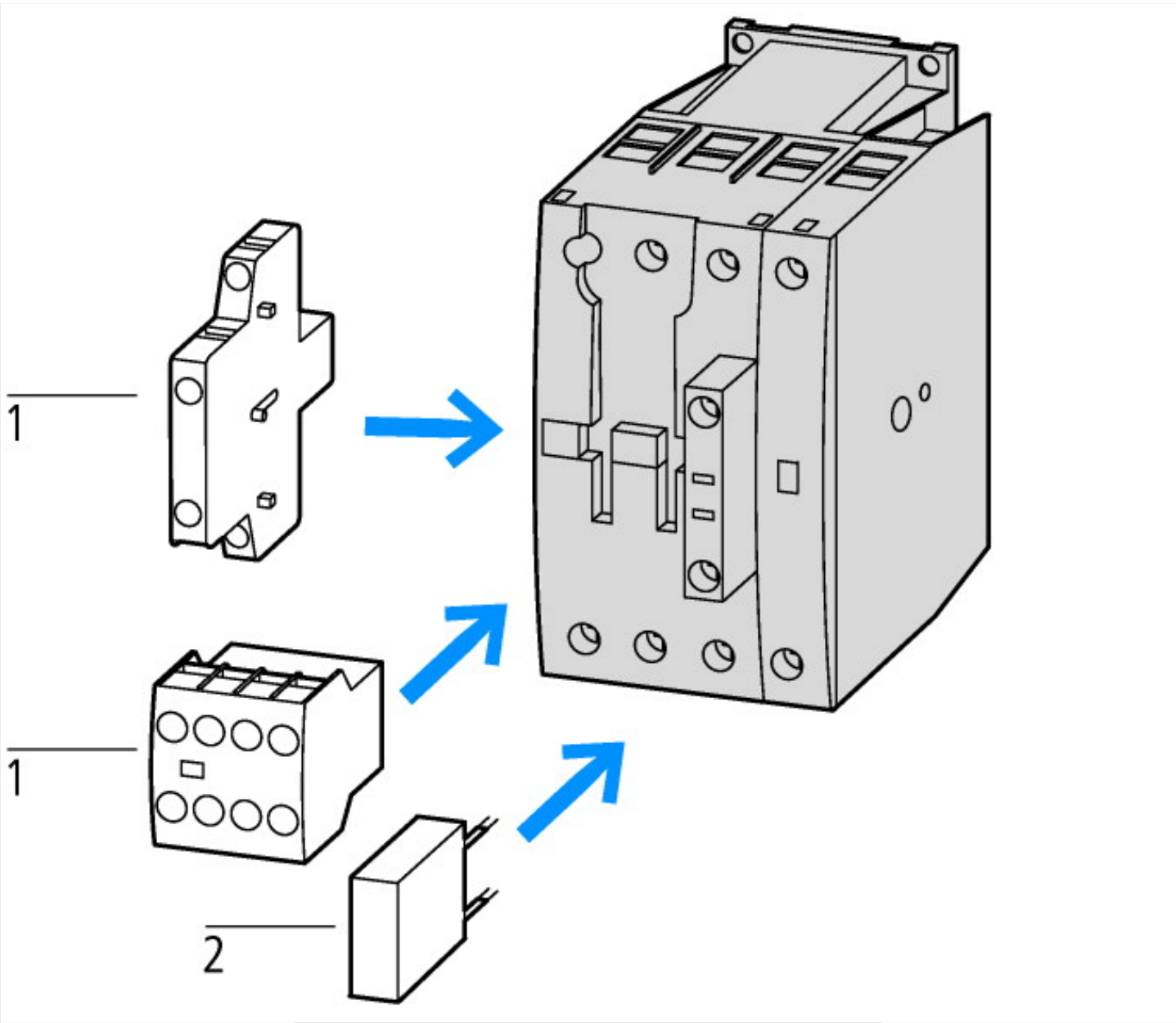
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| 10.3 Degree of protection of ASSEMBLIES                  |  | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| 10.4 Clearances and creepage distances                   |  | 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

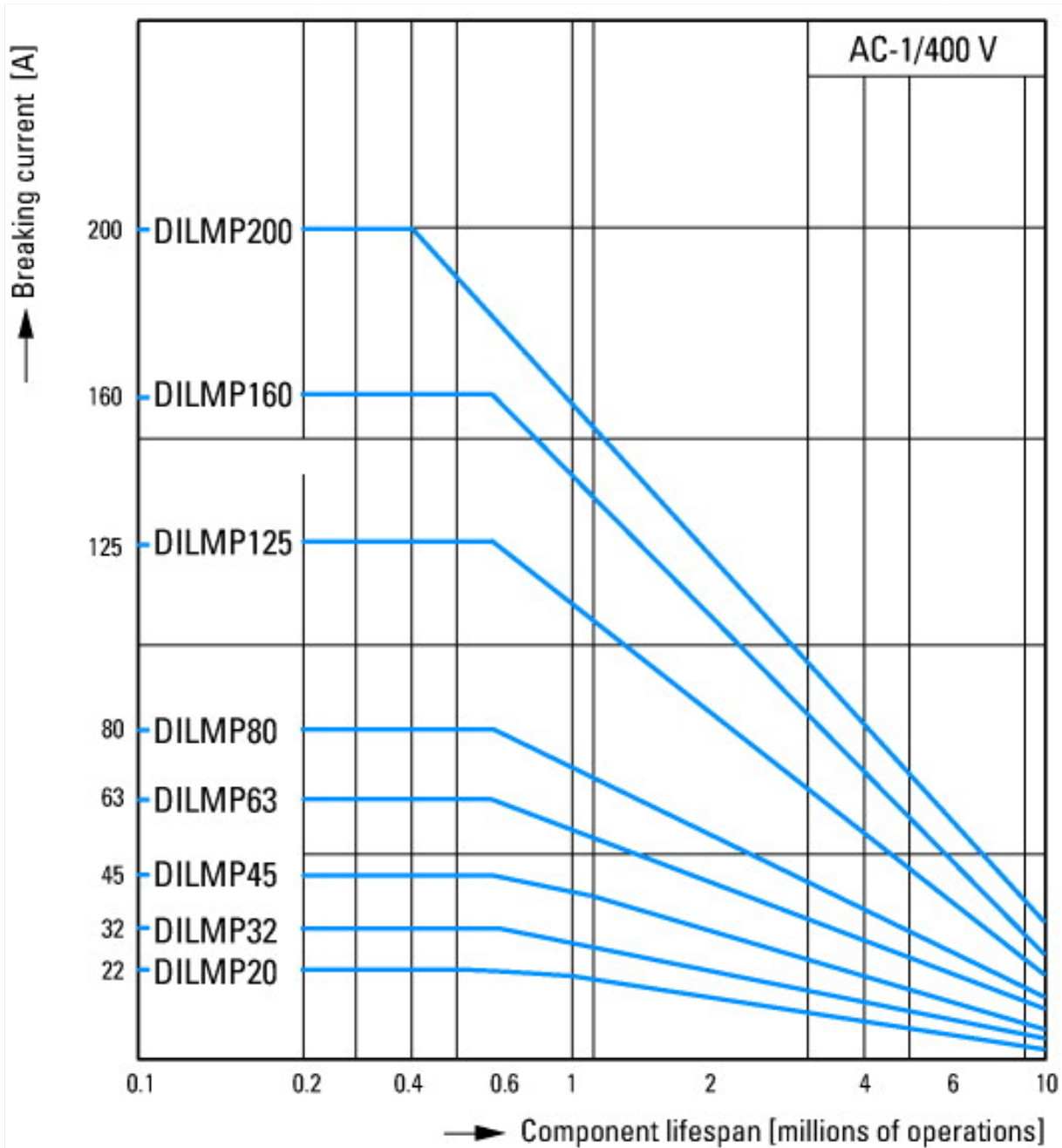
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| Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)                                                                                               |    |                  |
| Electric engineering, automation, process 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  | 110 - 110        |
| Rated control supply voltage Us at AC 60HZ                                                                                                                                            | V  | 120 - 120        |
| Rated control supply voltage Us at DC                                                                                                                                                 | V  | 0 - 0            |
| Voltage type for actuating                                                                                                                                                            |    | AC               |
| Rated operation current Ie at AC-1, 400 V                                                                                                                                             | A  | 45               |
| Rated operation current Ie at AC-3, 400 V                                                                                                                                             | A  | 25               |
| Rated operation power at AC-3, 400 V                                                                                                                                                  | kW | 11               |
| Rated operation current Ie at AC-4, 400 V                                                                                                                                             | A  | 15               |
| Rated operation power at AC-4, 400 V                                                                                                                                                  | kW | 7                |
| Rated operation power NEMA                                                                                                                                                            | kW | 11               |
| Modular version                                                                                                                                                                       |    | No               |
| Number of auxiliary contacts as normally open contact                                                                                                                                 |    | 1                |
| 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                                                                                                                                      |    | 4                |

## 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: Auxiliary contact module  
2: Suppressor



Switching conditions for 4 pole, non-motor loads

Operating characteristics

Non inductive and slightly inductive loads

Electrical characteristics

Switch on: 1 x rated operational current

Switch off: 1 x rated operational current

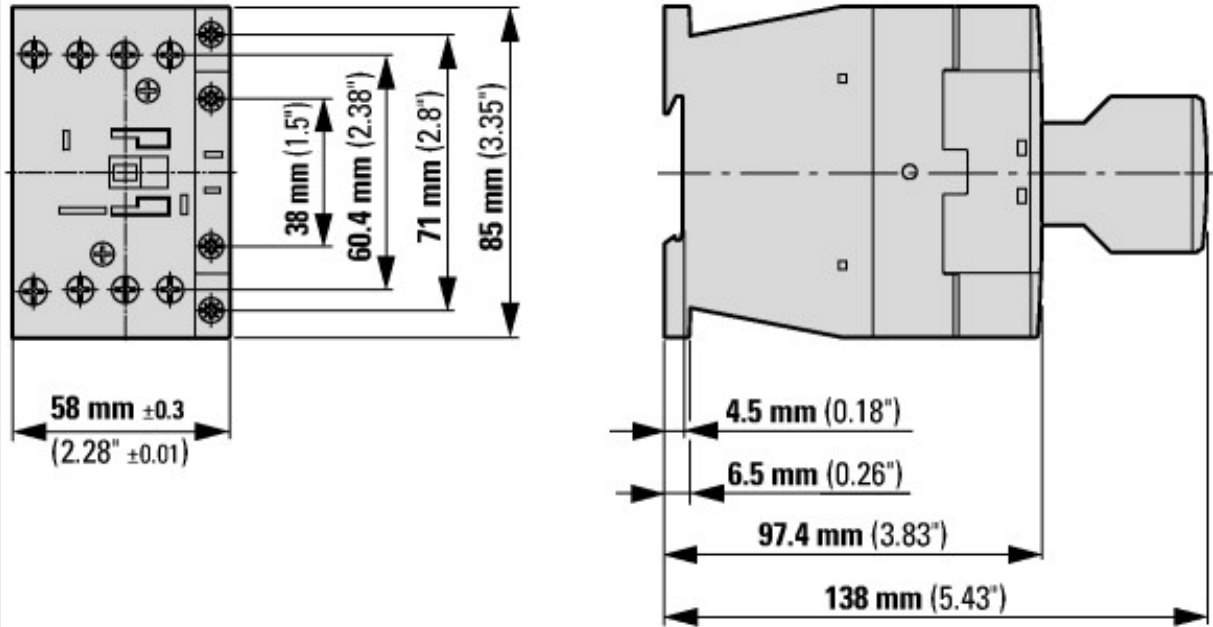
Utilization category

100 % AC-1

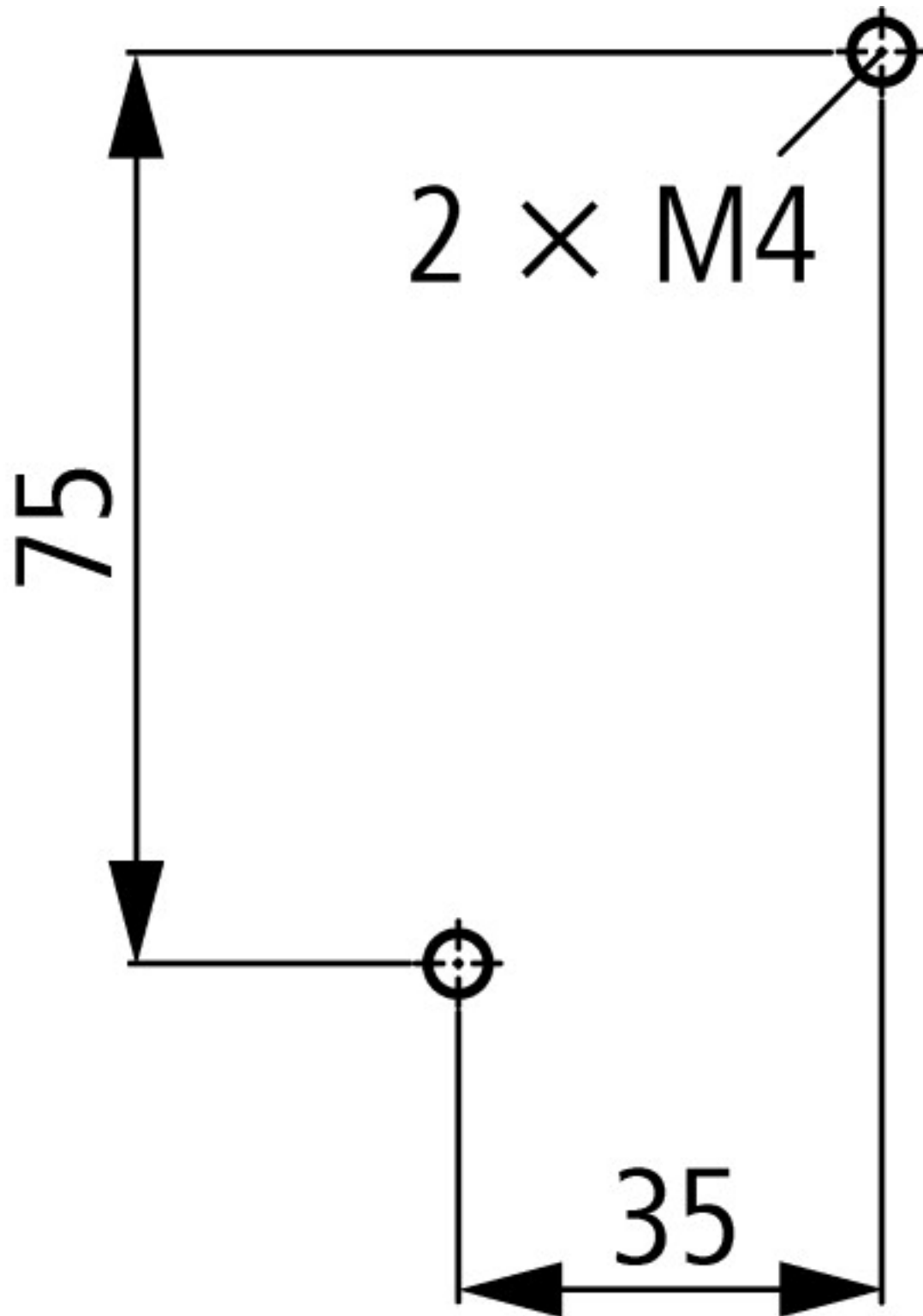
Typical examples of application

Electric heat

Dimensions



Contactor with auxiliary contact module



distance at side to earthed parts: 6 mm

DILMP32  
DILMP45