

**DATASHEET - DILM72(230V50HZ,240V60HZ)**

**Contactors, 3 pole, 380 V 400 V 37 kW, 230 V 50 Hz, 240 V 60 Hz, AC operation, Screw terminals**

**Part no. DILM72(230V50HZ,240V60HZ)**  
**Catalog No. 107670**  
**Alternate Catalog No. XTCE072D00F**  
**EL-Nummer (Norway) 4130420**

**Delivery program**

Product range				Contactors
Application				Contactors for Motors
Subrange				Contactors up to 170 A, 3 pole
Utilization category				AC-1: Non-inductive or slightly inductive loads, resistance furnaces NAC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching
Notes				Not suitable for motors with efficiency class IE3.
Connection technique				Screw terminals
Number of poles				3 pole
<b>Rated operational current</b>				
AC-3				
Notes				At maximum permissible ambient temperature (open.)
380 V 400 V	$I_e$	A		72
AC-1				
Conventional free air thermal current, 3 pole, 50 - 60 Hz				
Open				
at 40 °C	$I_{th} = I_e$	A		98
enclosed	$I_{th}$	A		72
Conventional free air thermal current, 1 pole				
open	$I_{th}$	A		200
enclosed	$I_{th}$	A		180
<b>Max. rating for three-phase motors, 50 - 60 Hz</b>				
AC-3				
220 V 230 V	P	kW		22
380 V 400 V	P	kW		37
660 V 690 V	P	kW		35
AC-4				
220 V 230 V	P	kW		7
380 V 400 V	P	kW		12
660 V 690 V	P	kW		17
Contact sequence				
<b>Instructions</b>				Contacts to EN 50 012. Observe electrical lifespan.
Can be combined with auxiliary contact				DILM150-XHI(V).. DILM1000-XHI(V)..
Actuating voltage				230 V 50 Hz, 240 V 60 Hz
Voltage AC/DC				AC operation
Connection to SmartWire-DT				no

**Technical data**

<b>General</b>				
Standards				IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical				

AC operated	Operations	x 10 <sup>6</sup>	10
Operating frequency, mechanical			
AC operated	Operations/h		5000
Climatic proofing			
Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature			
Open		°C	-25 - +60
Enclosed		°C	- 25 - 40
Storage		°C	- 40 - 80
Mounting position			
			
Mechanical shock resistance (IEC/EN 60068-2-27)			
Half-sinusoidal shock, 10 ms			
Main contacts			
N/O contact		g	10
Auxiliary contacts			
N/O contact		g	7
N/C contact		g	5
Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted			
Half-sinusoidal shock, 10 ms			
Main contacts			
N/O contact		g	10
Auxiliary contacts			
N/O contact		g	7
N/C contact		g	5
Degree of Protection			
IP00			
Protection against direct contact when actuated from front (EN 50274)			
Finger and back-of-hand proof			
Altitude			
m			
Max. 2000			
Weight			
AC operated		kg	0.872
Screw connector terminals			
Terminal capacity main cable			
Solid		mm <sup>2</sup>	1 x (0.75 - 16) 2 x (0.75 - 16)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 35) 2 x (0.75 - 25)
Stranded		mm <sup>2</sup>	1 x (16 - 50) 2 x (16 - 35)
Solid or stranded		AWG	single 14 - 1, double 14 - 2
Flat conductor	Lamellenzahl x Breite x Dicke	mm	2 x (6 x 9 x 0.8)
Stripping length		mm	14
Terminal screw			M6
Tightening torque		Nm	3.3
Tool			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 6
Terminal capacity control circuit cables			
Solid		mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Solid or stranded		AWG	18 - 14

Stripping length		mm	10
Terminal screw			M3.5
Tightening torque		Nm	1.2
Tool			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 6

### Main conducting paths

Rated impulse withstand voltage	$U_{imp}$	V AC	8000
Overvoltage category/pollution degree			III/3
Rated insulation voltage	$U_i$	V AC	690
Rated operational voltage	$U_e$	V AC	690
Safe isolation to EN 61140			
between coil and contacts		V AC	440
between the contacts		V AC	440
Making capacity (p.f. to IEC/EN 60947)			
	Up to 690 V	A	910
Breaking capacity			
220 V 230 V		A	650
380 V 400 V		A	650
500 V		A	650
660 V 690 V		A	370
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	125
690 V	gG/gL 690 V	A	80
Type "1" coordination			
400 V	gG/gL 500 V	A	250
690 V	gG/gL 690 V	A	100

### 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	98
at 50 °C	$I_{th} = I_e$	A	88
at 55 °C	$I_{th} = I_e$	A	83
at 60 °C	$I_{th} = I_e$	A	80
enclosed	$I_{th}$	A	72
Conventional free air thermal current, 1 pole			
open	$I_{th}$	A	200
enclosed	$I_{th}$	A	180
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	72
240 V	$I_e$	A	72
380 V 400 V	$I_e$	A	72
415 V	$I_e$	A	72
440V	$I_e$	A	72
500 V	$I_e$	A	72
660 V 690 V	$I_e$	A	37
380 V 400 V	$I_e$	A	72

Motor rating	P	kWh	
220 V 230 V	P	kW	22
240V	P	kW	25
380 V 400 V	P	kW	37
415 V	P	kW	41
440 V	P	kW	44
500 V	P	kW	50
660 V 690 V	P	kW	35

**AC-4**

Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I <sub>e</sub>	A	25
240 V	I <sub>e</sub>	A	25
380 V 400 V	I <sub>e</sub>	A	25
415 V	I <sub>e</sub>	A	25
440 V	I <sub>e</sub>	A	25
500 V	I <sub>e</sub>	A	25
660 V 690 V	I <sub>e</sub>	A	20

Motor rating	P	kWh	
220 V 230 V	P	kW	7
240 V	P	kW	7.5
380 V 400 V	P	kW	12
415 V	P	kW	13
440 V	P	kW	14
500 V	P	kW	16
660 V 690 V	P	kW	17

**DC**

Rated operational current, open			
DC-1			
60 V	I <sub>e</sub>	A	72
110 V	I <sub>e</sub>	A	72
220 V	I <sub>e</sub>	A	65

**Current heat loss**

3 pole, at I <sub>th</sub> (60°)		W	25.9
Current heat loss at I <sub>e</sub> to AC-3/400 V		W	21
Impedance per pole		mΩ	1.9

**Magnet systems**

Voltage tolerance			
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
Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub>			
50 Hz	Pick-up	VA	149
50 Hz	Sealing	VA	16
50 Hz	Sealing	W	4.1
60 Hz	Pick-up	VA	178
60 Hz	Sealing	VA	19
60 Hz	Sealing	W	4.1
Duty factor		% DF	100
Changeover time at 100 % U <sub>S</sub> (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	12 - 18
Opening delay		ms	8 - 13
Arcing time		ms	10

**Electromagnetic compatibility (EMC)**

Emitted interference			to EN 60947-1
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Interference immunity

to EN 60947-1

**Rating data for approved types**

Switching capacity		
Maximum motor rating		
Three-phase		
200 V 208 V	HP	20
230 V 240 V	HP	25
460 V 480 V	HP	50
575 V 600 V	HP	60
Single-phase		
115 V 120 V	HP	5
230 V 240 V	HP	15
General use	A	88
Short Circuit Current Rating		
Basic Rating		
SCCR		
SCCR	kA	10
max. Fuse	A	250
max. CB	A	250
480 V High Fault		
SCCR (fuse)	kA	30/100
max. Fuse	A	250/150 Class J
SCCR (CB)	kA	65
max. CB	A	100
600 V High Fault		
SCCR (fuse)	kA	30/100
max. Fuse	A	250/150 Class J
SCCR (CB)	kA	30
max. CB	A	250
Special Purpose Ratings		
Electrical Discharge Lamps (Ballast)		
480V 60Hz 3phase, 277V 60Hz 1phase	A	88
600V 60Hz 3phase, 347V 60Hz 1phase	A	88
Incandescent Lamps (Tungsten)		
480V 60Hz 3phase, 277V 60Hz 1phase	A	88
600V 60Hz 3phase, 347V 60Hz 1phase	A	88
Resistance Air Heating		
480V 60Hz 3phase, 277V 60Hz 1phase	A	88
600V 60Hz 3phase, 347V 60Hz 1phase	A	88
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)		
LRA 480V 60Hz 3phase	A	432
FLA 480V 60Hz 3phase	A	72
Elevator Control		
200V 60Hz 3phase	HP	10
200V 60Hz 3phase	A	32.2
240V 60Hz 3phase	HP	15
240V 60Hz 3phase	A	42
480V 60Hz 3phase	HP	30
480V 60Hz 3phase	A	40
600V 60Hz 3phase	HP	40
600V 60Hz 3phase	A	41

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	72
Heat dissipation per pole, current-dependent	$P_{vid}$	W	7
Equipment heat dissipation, current-dependent	$P_{vid}$	W	21
Static heat dissipation, non-current-dependent	$P_{vs}$	W	4.1
Heat dissipation capacity	$P_{diss}$	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])			
Rated control supply voltage $U_s$ at AC 50HZ	V		230 - 230
Rated control supply voltage $U_s$ at AC 60HZ	V		240 - 240
Rated control supply voltage $U_s$ at DC	V		0 - 0
Voltage type for actuating			AC
Rated operation current $I_e$ at AC-1, 400 V	A		98
Rated operation current $I_e$ at AC-3, 400 V	A		72
Rated operation power at AC-3, 400 V	kW		37
Rated operation current $I_e$ at AC-4, 400 V	A		25
Rated operation power at AC-4, 400 V	kW		12
Rated operation power NEMA	kW		37
Modular version			No
Number of auxiliary contacts as normally open contact			0
Number of auxiliary contacts as normally closed contact			0
Type of electrical connection of main circuit			Screw connection
Number of normally closed contacts as main contact			0

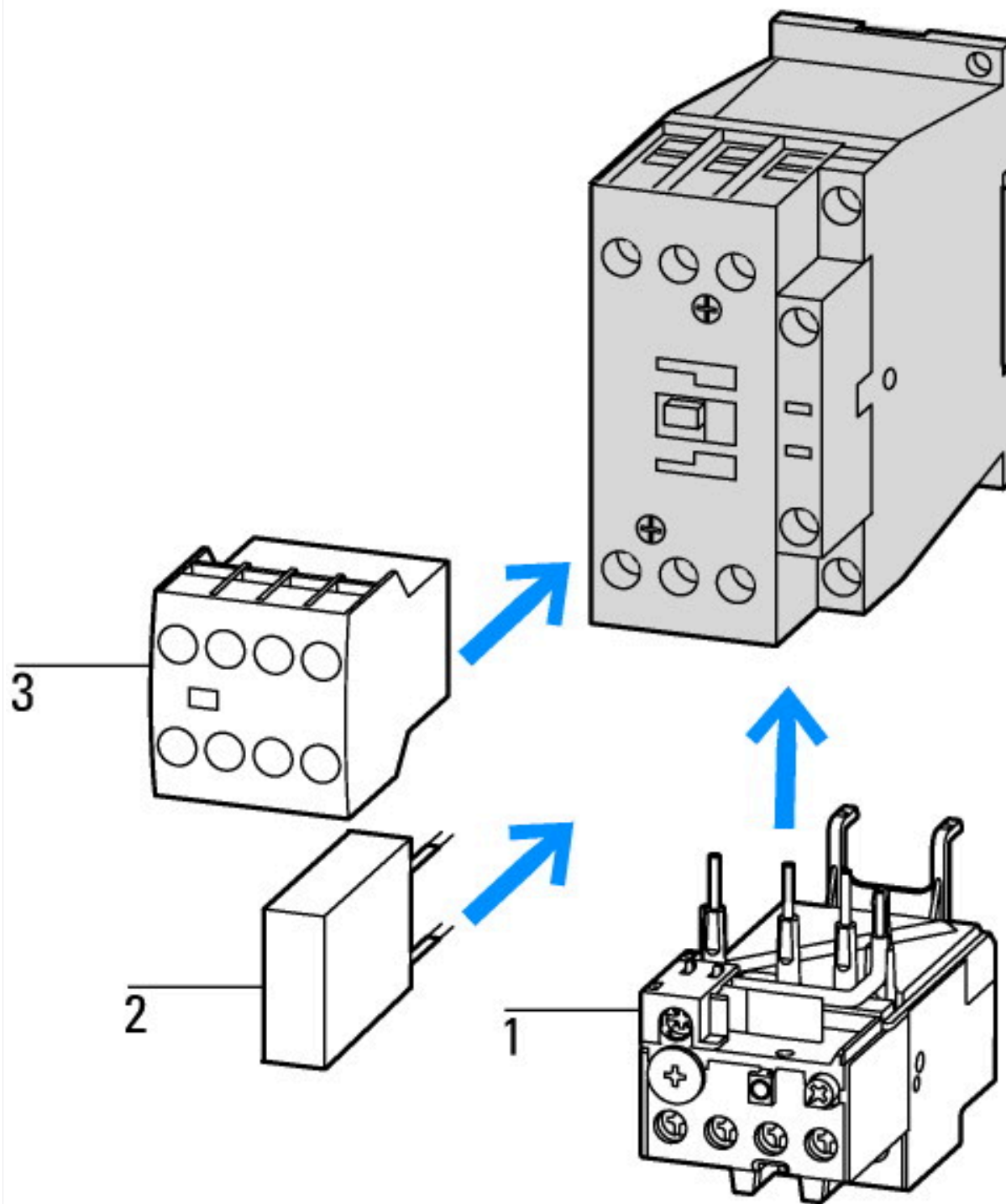
Number of main contacts as normally open contact

3

## Approvals

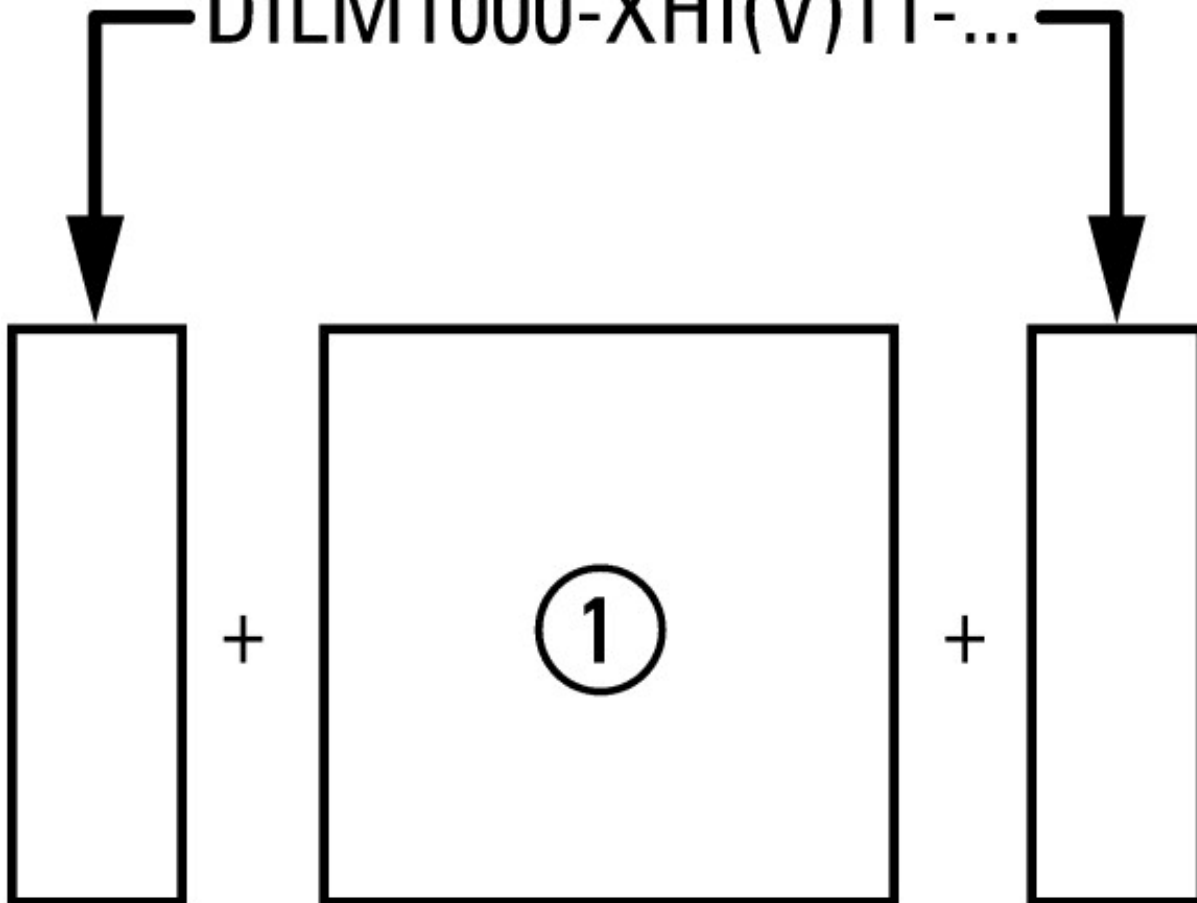
Product Standards	IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CE marking
UL File No.	E29096
UL Category Control No.	NLDX
CSA File No.	012528
CSA Class No.	2411-03, 3211-04
North America Certification	UL listed, CSA certified
Specially designed for North America	No

## Characteristics

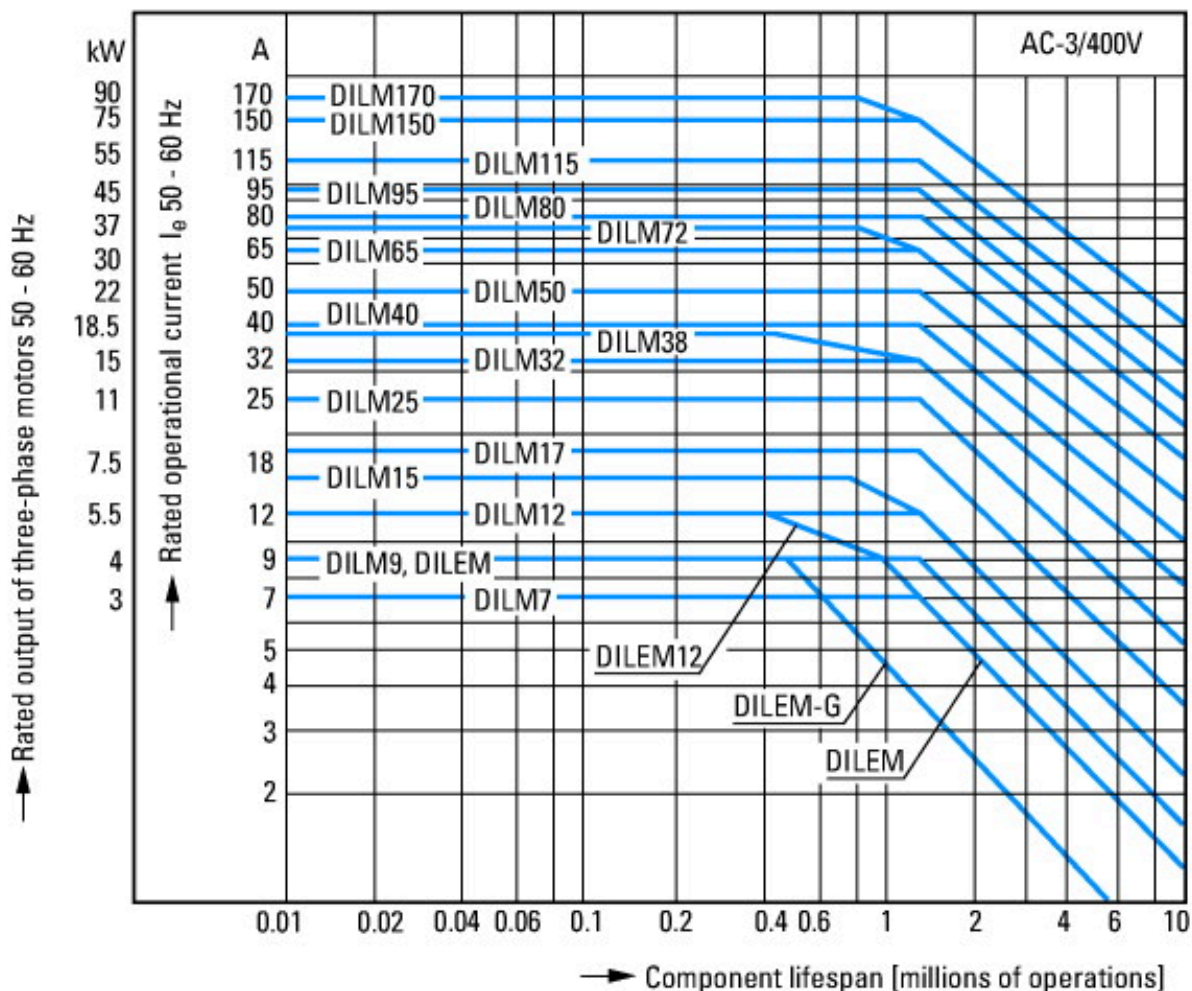


- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules

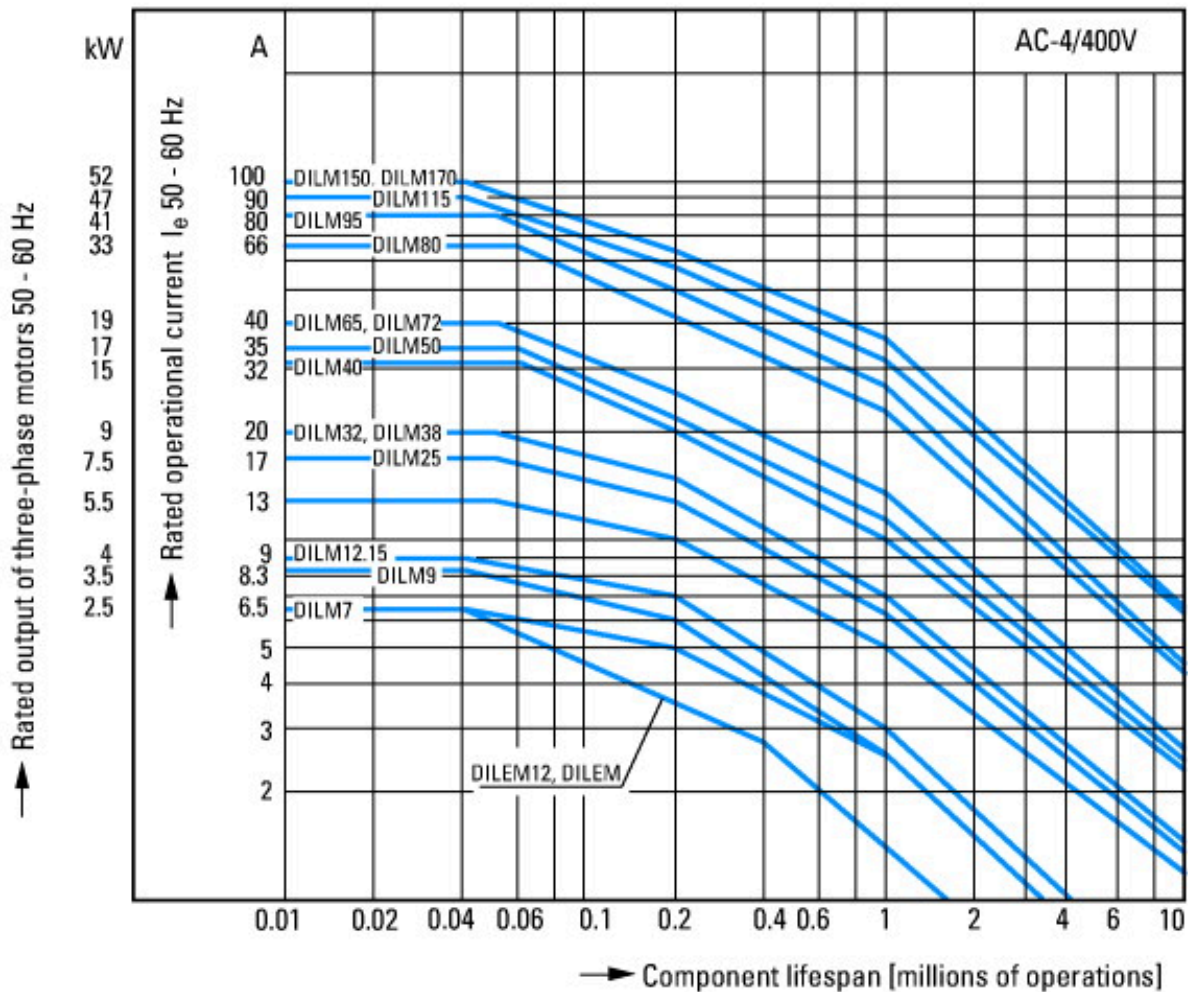
# DILM1000-XHI(V)11-...



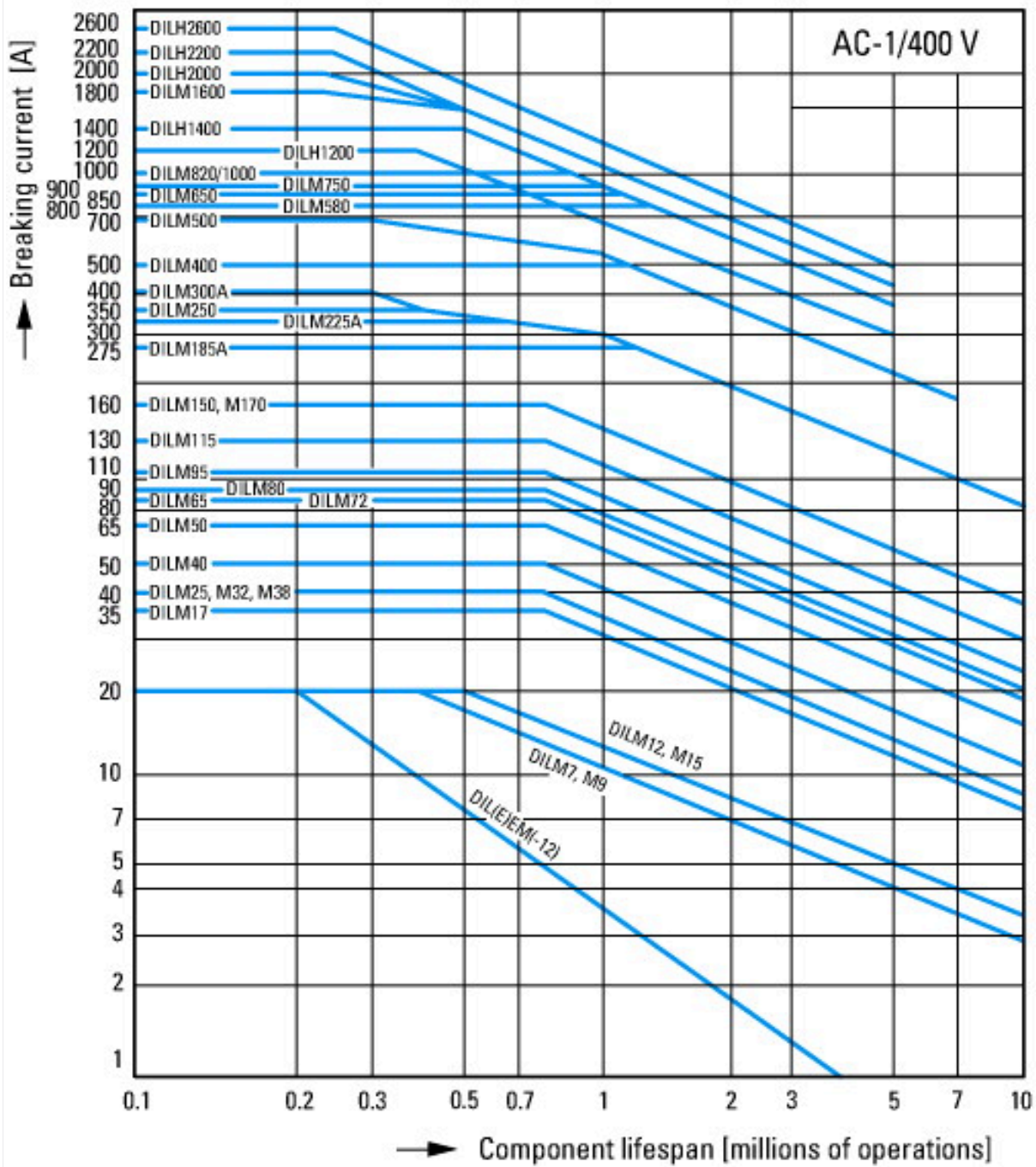
on the side: 2 x DILM1000-XHI(V)11-SI; surface mounting: 1 x DILM150-XHIA11  
 on the side: 2 x DILM1000-XHI(V)11-SA; surface mounting: 1 x DILM150-XHI (2 pole)  
 on the side: 1 x DILM1000-XHI(V)11-SI; surface mounting: 1 x DILM150-XHIA22  
 on the side: 1 x DILM1000-XHI(V)11-SA; surface mounting: 1 x DILM150-XHI (4 pole)



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

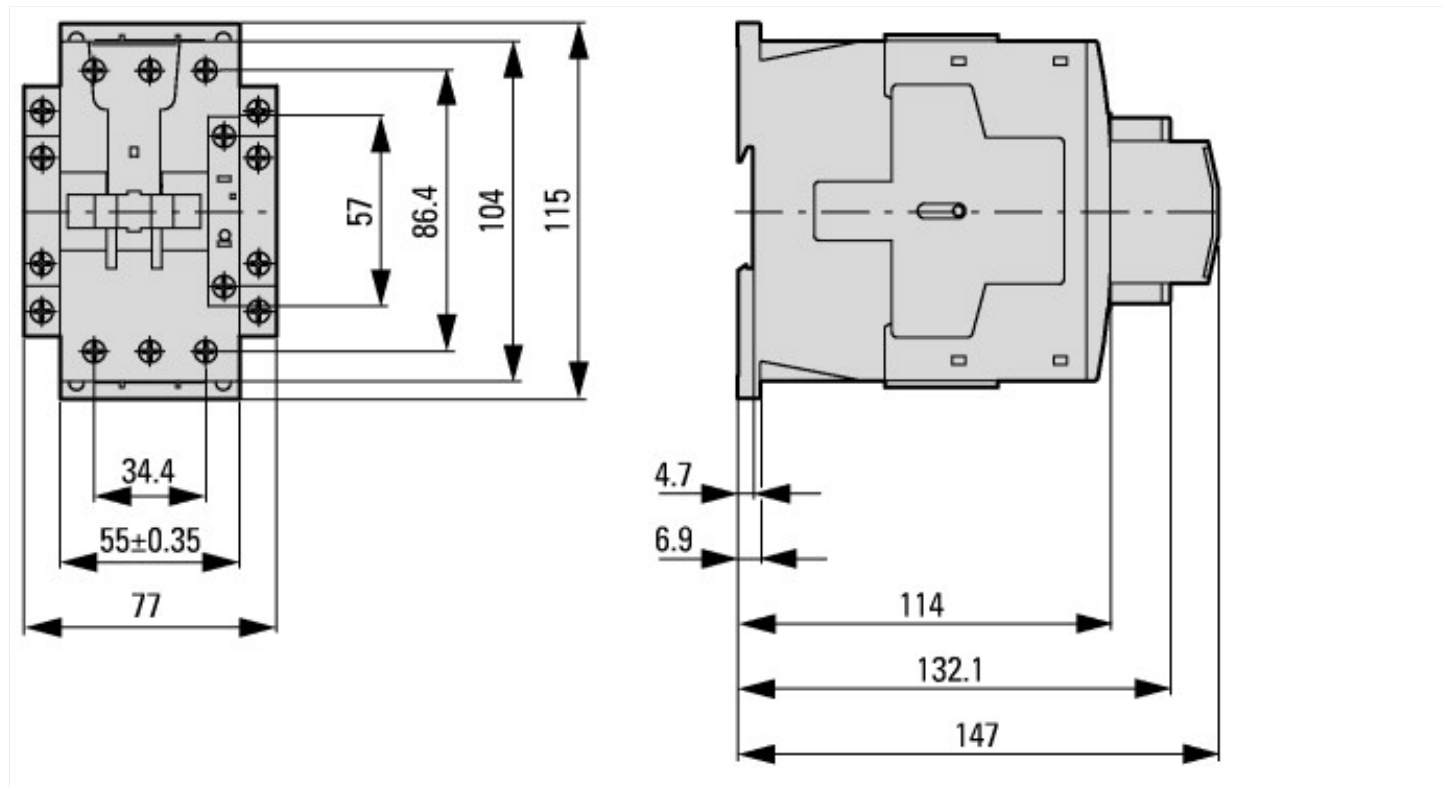


Extreme switching duty  
 Squirrel-cage motor  
 Operating characteristics  
 Inching, plugging, reversing  
 Electrical characteristics  
 Make: up to 6 x rated motor current  
 Break: up to 6 x rated motor current  
 Utilization category  
 100 % AC-4  
 Typical applications  
 Printing presses  
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

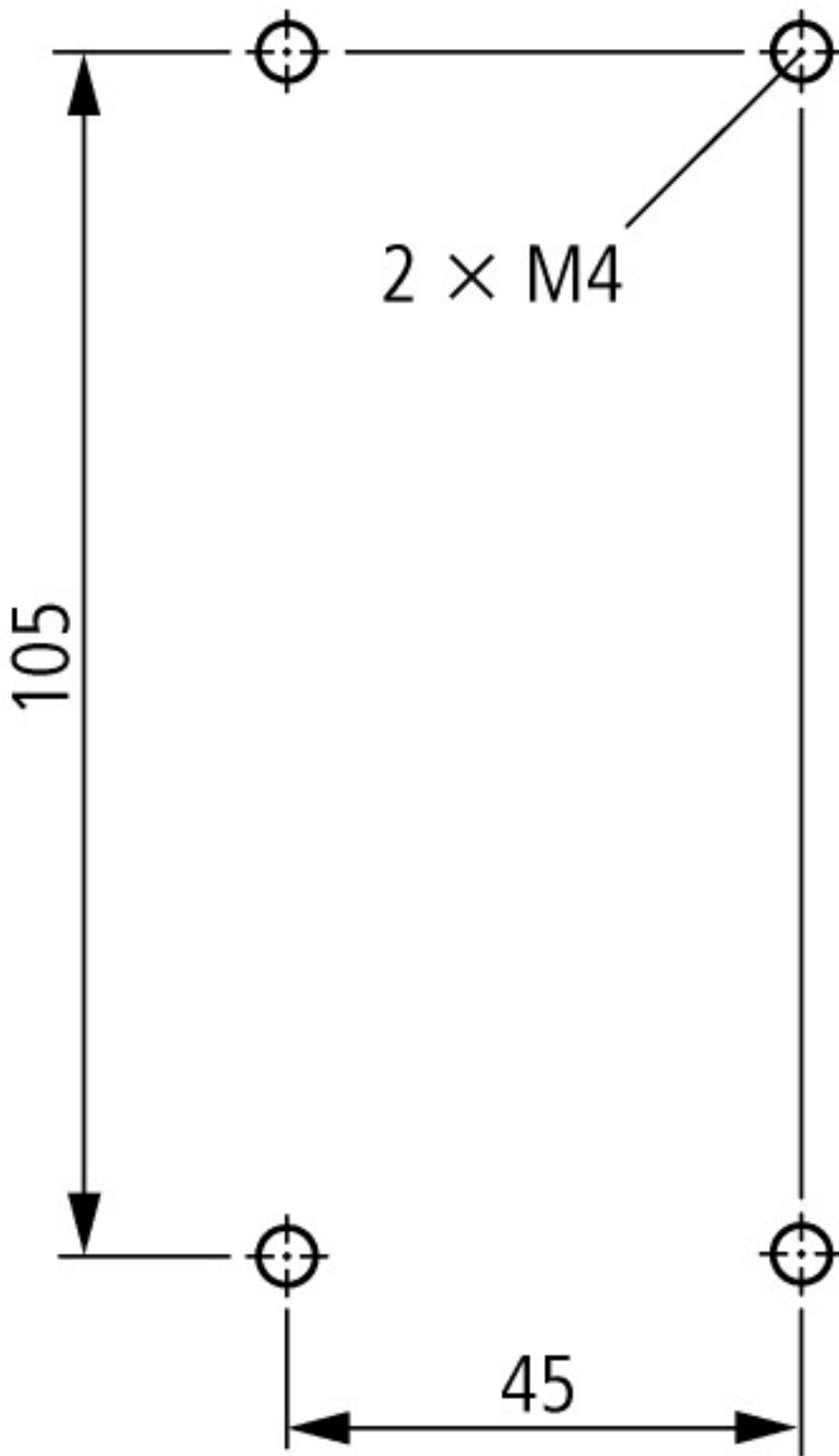


Switching conditions for non-motor consumers, 3 pole, 4 pole  
 Operating characteristics  
 Non inductive and slightly inductive loads  
 Electrical characteristics  
 Switch on: 1 x rated operational current  
 Switch off: 1 x rated operational current  
 Utilization category  
 100 % AC-1  
 Typical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

**Dimensions**



Contacteur with auxiliary contact module



Lateral clearance to earthed parts: 6 mm

DILM40...DILM72  
DILMC40...DILMC65  
DILMF40...DILMF65



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