

DATASHEET - DILM38-01(400V50HZ,440V60HZ)

Contactors, 3 pole, 380 V 400 V 18.5 kW, 1 NC, 400 V 50 Hz, 440 V 60 Hz, AC operation, Screw terminals

Powering Business Worldwide™

Part no. DILM38-01(400V50HZ,440V60HZ)
Catalog No. 112458
Alternate Catalog No. XTCE038C0113

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 AC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching
Notes				Not suitable for motors with efficiency class IE3.
Connection technique				Screw terminals
Number of poles				3 pole
Rated operational current				
AC-3				
Notes				At maximum permissible ambient temperature (open.)
380 V 400 V	I_e	A		38
AC-1				
Conventional free air thermal current, 3 pole, 50 - 60 Hz				
Open				
at 40 °C	$I_{th} = I_e$	A		45
enclosed	I_{th}	A		36
Conventional free air thermal current, 1 pole				
open	I_{th}	A		100
enclosed	I_{th}	A		90
Max. rating for three-phase motors, 50 - 60 Hz				
AC-3				
220 V 230 V	P	kW		11
380 V 400 V	P	kW		18.5
660 V 690 V	P	kW		21
AC-4				
220 V 230 V	P	kW		4
380 V 400 V	P	kW		7
660 V 690 V	P	kW		10
Contacts				
N/C = Normally closed				1 NC
Contact sequence				
Instructions				
Can be combined with auxiliary contact				DILA-XHI(V)..
Actuating voltage				400 V 50 Hz, 440 V 60 Hz
Voltage AC/DC				AC operation
Connection to SmartWire-DT				no

Technical data

General

Standards				IEC/EN 60947, VDE 0660, UL, CSA
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Lifespan, mechanical			
AC operated	Operations	$\times 10^6$	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		6.9
Auxiliary contacts			
N/O contact	g		5.3
N/C contact	g		3.5
Degree of Protection			
IP00			
Protection against direct contact when actuated from front (EN 50274)			
Finger and back-of-hand proof			
Altitude			
	m		Max. 2000
Weight			
AC operated	kg		0.428
Screw connector terminals			
Terminal capacity main cable			
Solid	mm ²		1 x (0.75 - 16) 2 x (0.75 - 10)
Flexible with ferrule	mm ²		1 x (0.75 - 16) 2 x (0.75 - 10)
Stranded	mm ²		1 x 16
Solid or stranded	AWG		single 18 - 6, double 18 - 8
Stripping length	mm		10
Terminal screw			M5
Tightening torque	Nm		3.2
Tool			
Pozidriv screwdriver	Size		2
Standard screwdriver	mm		0.8 x 5.5 1 x 6
Terminal capacity control circuit cables			
Solid	mm ²		1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule	mm ²		1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Solid or stranded	AWG		18 - 14
Stripping length	mm		10
Terminal screw			M3.5

Tightening torque		Nm	1.2
Tool			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 6

Main conducting paths

Rated impulse withstand voltage	U_{imp}	V AC	8000
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U_i	V AC	690
Rated operational voltage	U_e	V AC	690
Safe isolation to EN 61140			
between coil and contacts		V AC	440
between the contacts		V AC	440
Making capacity (p.f. to IEC/EN 60947)			
	U_p to 690 V	A	384
Breaking capacity			
220 V 230 V		A	320
380 V 400 V		A	320
500 V		A	320
660 V 690 V		A	180
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	63
690 V	gG/gL 690 V	A	35
Type "1" coordination			
400 V	gG/gL 500 V	A	125
690 V	gG/gL 690 V	A	63

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	43
at 55 °C	$I_{th} = I_e$	A	42
at 60 °C	$I_{th} = I_e$	A	40
enclosed	I_{th}	A	36
Conventional free air thermal current, 1 pole			
open	I_{th}	A	100
enclosed	I_{th}	A	90
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	38
240 V	I_e	A	38
380 V 400 V	I_e	A	38
415 V	I_e	A	38
440V	I_e	A	38
500 V	I_e	A	38
660 V 690 V	I_e	A	22.5
380 V 400 V	I_e	A	38
Motor rating	P	kWh	
220 V 230 V	P	kW	11

240 V	P	kW	12
380 V 400 V	P	kW	18.5
415 V	P	kW	20
440 V	P	kW	21
500 V	P	kW	24
660 V 690 V	P	kW	21
AC-4			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	15
240 V	I_e	A	15
380 V 400 V	I_e	A	15
415 V	I_e	A	15
440 V	I_e	A	15
500 V	I_e	A	15
660 V 690 V	I_e	A	12
Motor rating			
220 V 230 V	P	kW	4
240 V	P	kW	4.5
380 V 400 V	P	kW	7
415 V	P	kW	7.5
440 V	P	kW	8
500 V	P	kW	9
660 V 690 V	P	kW	10

DC

Rated operational current, open			
DC-1			
60 V	I_e	A	40
110 V	I_e	A	40
220 V	I_e	A	40

Current heat loss

3 pole, at I_{th} (60°)		W	10.3
Current heat loss at I_e to AC-3/400 V		W	9.3
Impedance per pole		mΩ	2.7

Magnet systems

Voltage tolerance			
AC operated	Pick-up	$x U_c$	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	$x U_c$	0.3 - 0.6
Power consumption of the coil in a cold state and 1.0 x U_S			
50 Hz	Pick-up	VA	52
50 Hz	Sealing	VA	7.1
50 Hz	Sealing	W	2.1
60 Hz	Pick-up	VA	67
60 Hz	Sealing	VA	8.7
60 Hz	Sealing	W	2.1
Duty factor		% DF	100
Changeover time at 100 % U_S (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	16 - 22
Opening delay		ms	8 - 14
Arcing time		ms	10

Electromagnetic compatibility (EMC)

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

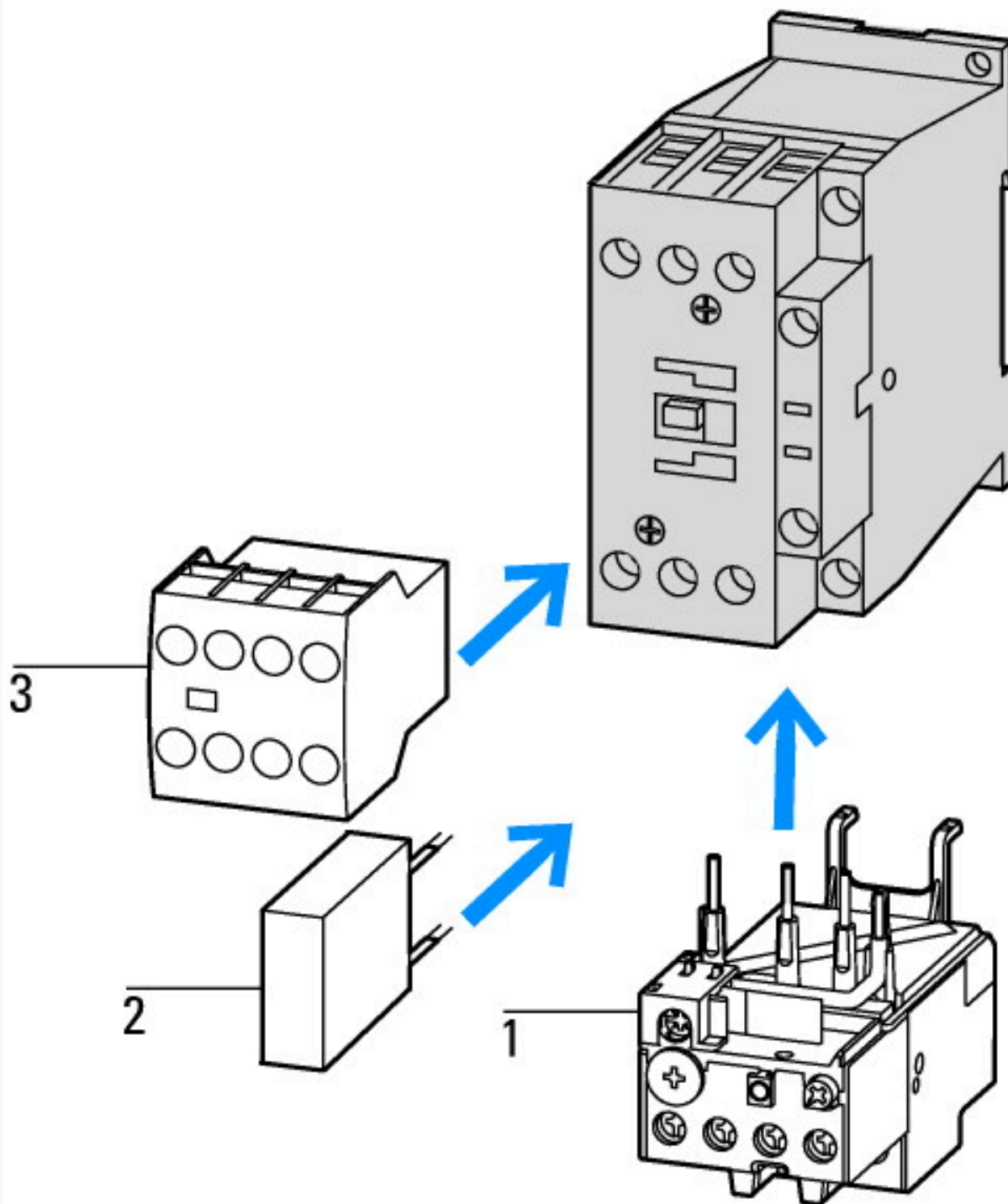
Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	38
Heat dissipation per pole, current-dependent	P_{vid}	W	3.1
Equipment heat dissipation, current-dependent	P_{vid}	W	9.3
Static heat dissipation, non-current-dependent	P_{vs}	W	2.1
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.

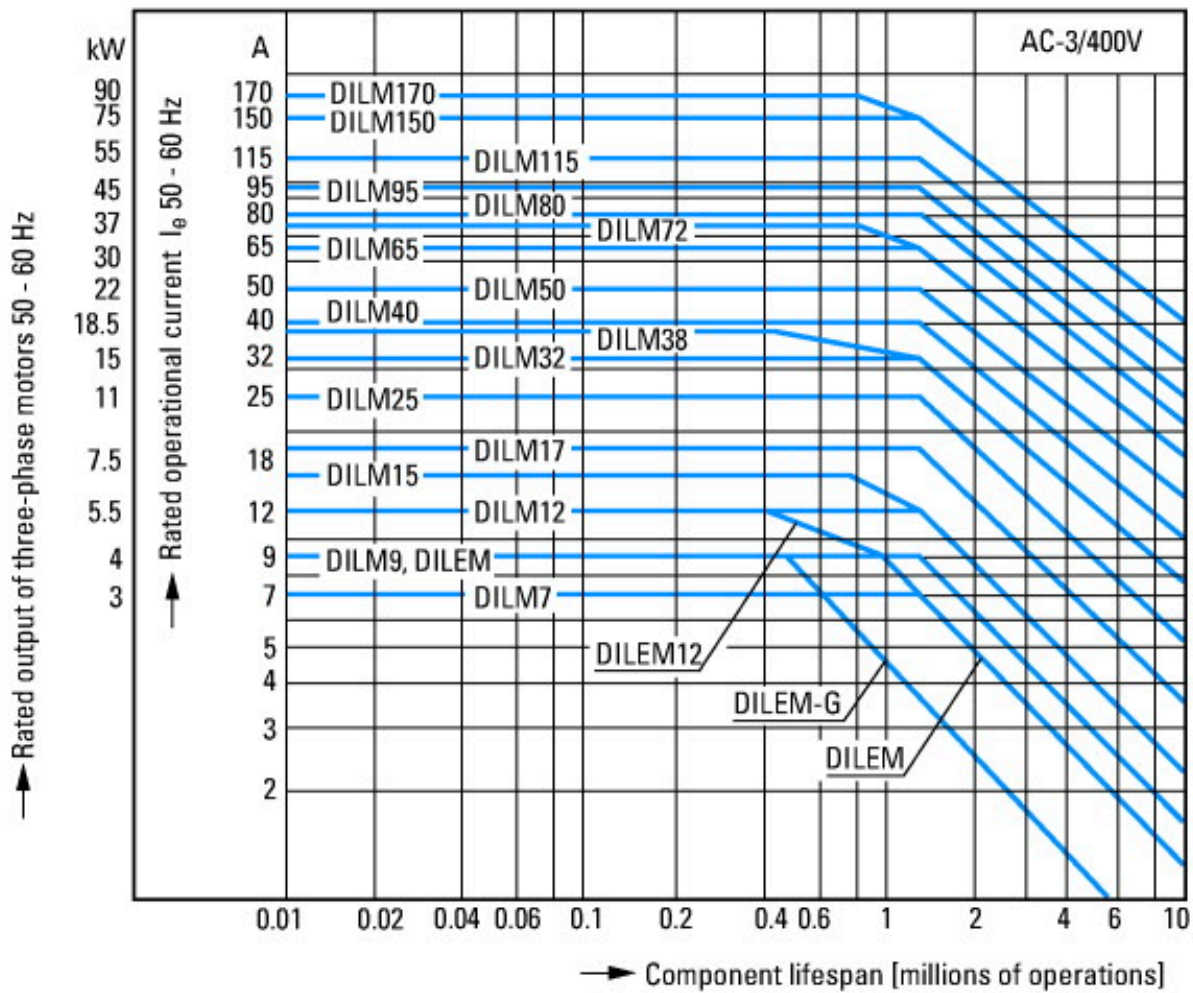
Technical data ETIM 7.0

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		400 - 400
Rated control supply voltage U_s at AC 60HZ	V		440 - 440
Rated control supply voltage U_s at DC	V		0 - 0
Voltage type for actuating			AC
Rated operation current I_e at AC-1, 400 V	A		45
Rated operation current I_e at AC-3, 400 V	A		38
Rated operation power at AC-3, 400 V	kW		18.5
Rated operation current I_e at AC-4, 400 V	A		15
Rated operation power at AC-4, 400 V	kW		7
Rated operation power NEMA	kW		14.9
Modular version			No
Number of auxiliary contacts as normally open contact			0
Number of auxiliary contacts as normally closed contact			1
Type of electrical connection of main circuit			Screw connection
Number of normally closed contacts as main contact			0

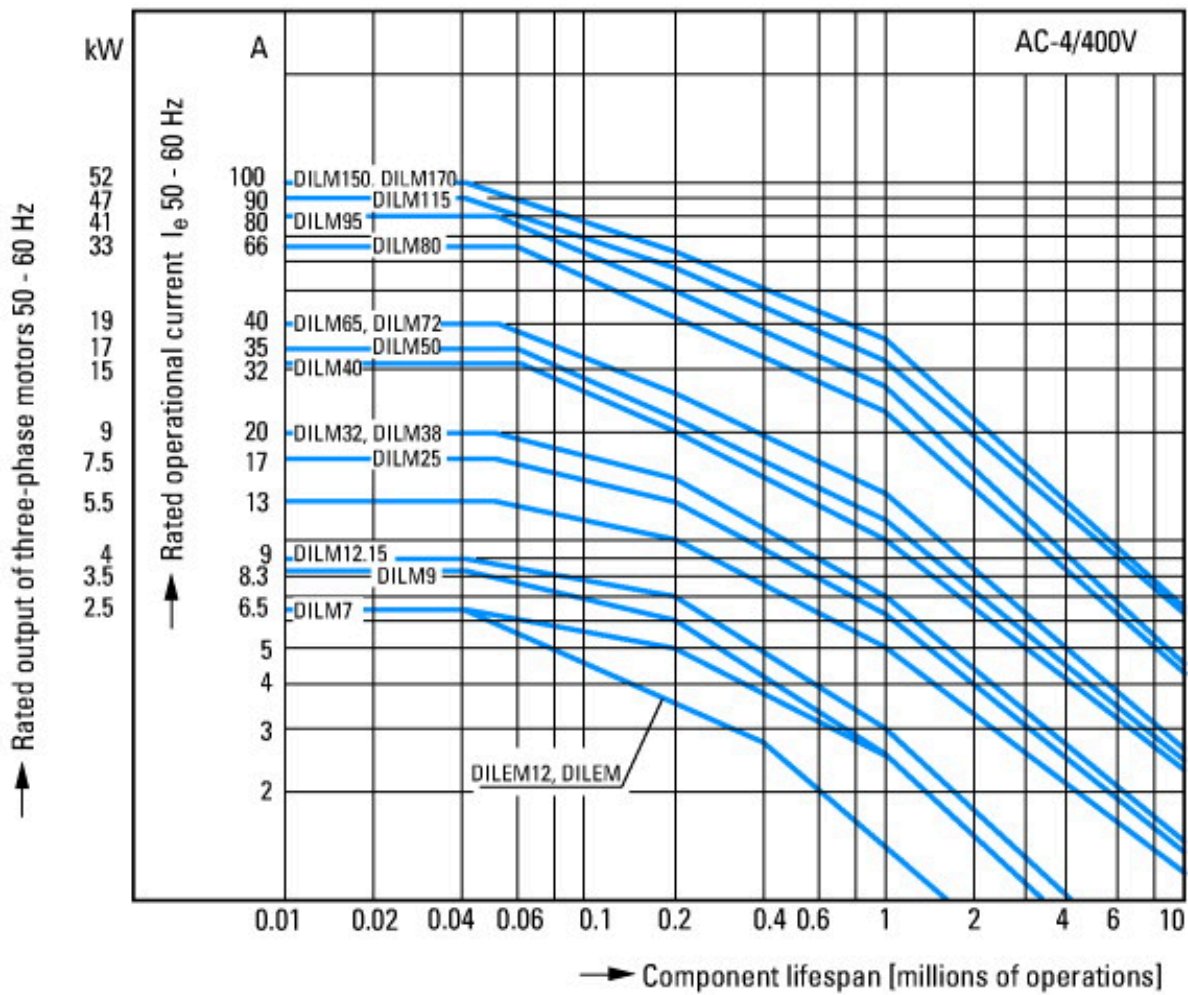
Characteristics



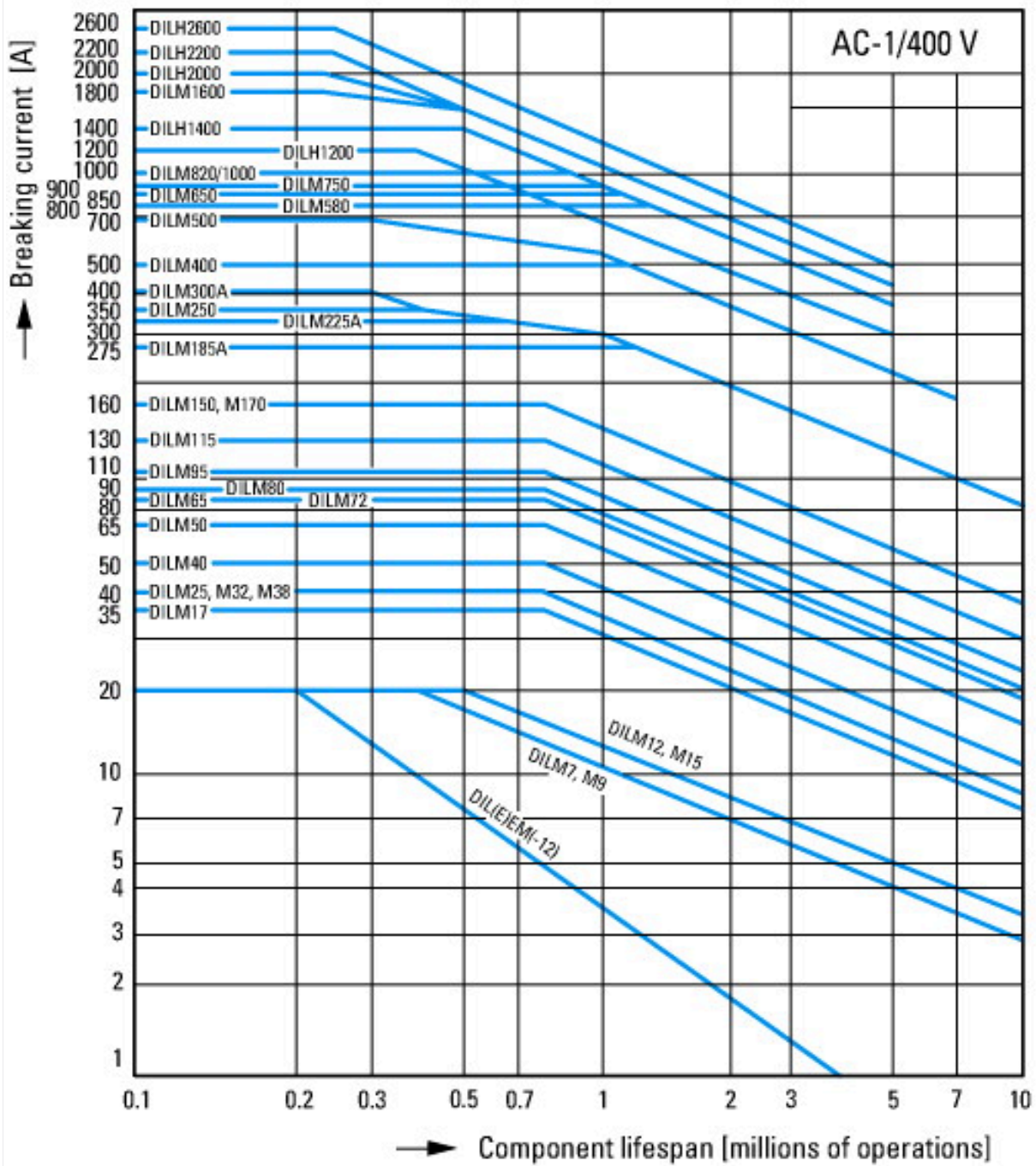
- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules



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

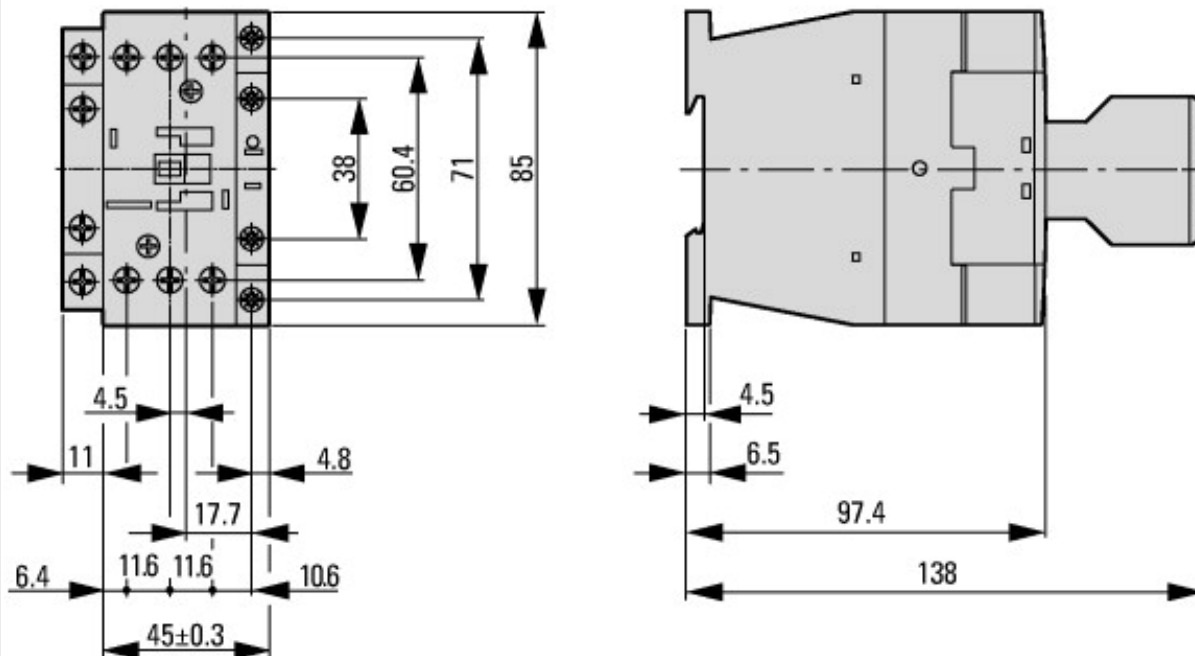


- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing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

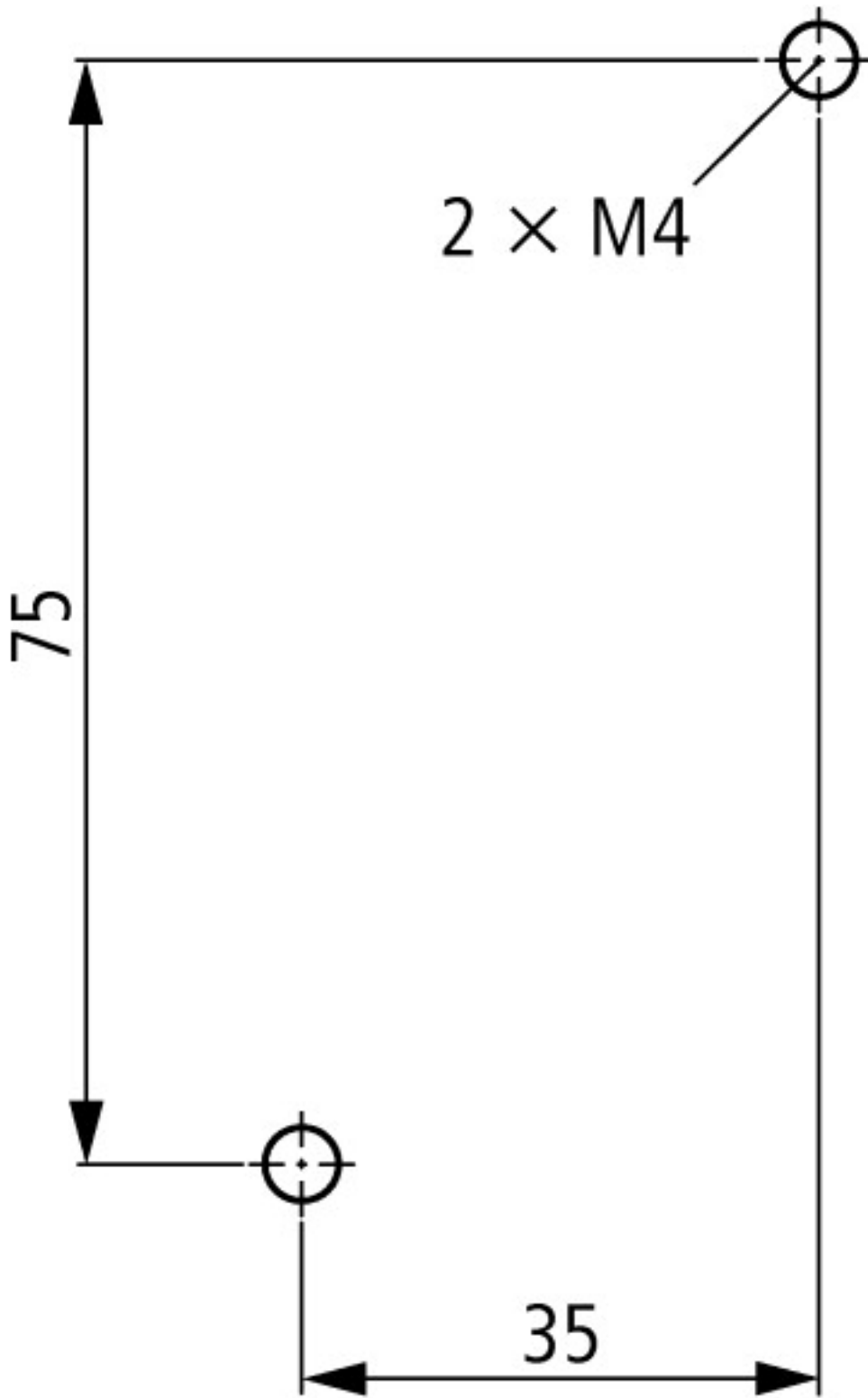


Switching conditions for non-motor consumers, 3 pole, 4 pole
 Operating characteristics
 Non inductive and slightly inductive loads
 Electrical characteristics
 Switch on: 1 x rated operational current
 Switch off: 1 x rated operational current
 Utilization category
 100 % AC-1
 Typical examples of application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

Dimensions



Contactor with auxiliary contact module



distance at side to earthed parts: 6 mm



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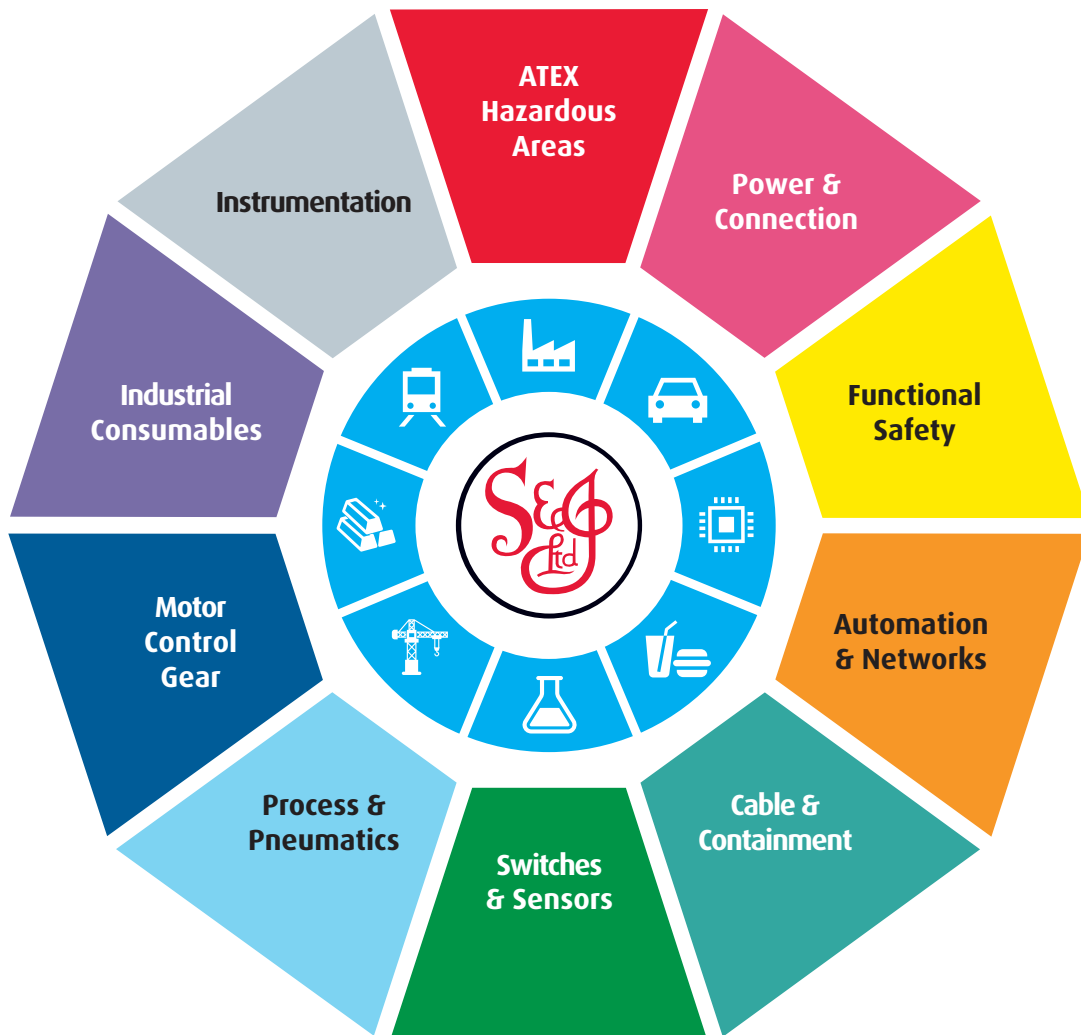
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