


Contactor, 380 V 400 V 15 kW, 2 N/O, 1 NC, RDC 24: 24 - 27 V DC, DC operation, Screw terminals

Part no. DILM32-21(RDC24)
Catalog No. 277338
Alternate Catalog No. XTCE032C21TD

Delivery program

Product range			Contactors
Application			Contactors for Motors
Subrange			Complete devices up to 170 A
Utilization category			AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-3/AC-3e: Normal AC induction motors: Starting, switching off while running AC-4: Normal AC induction motors: starting, plugging, reversing, inching
Connection technique			Screw terminals
			
Notes			Also suitable for motors with efficiency class IE3. Also tested according to AC-3e.

Rated operational current

AC-3				
380 V 400 V	I_e	A		32
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		10
380 V 400 V	P	kW		15
660 V 690 V	P	kW		17
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/O = Normally open				2 N/O
N/C = Normally closed				1 NC

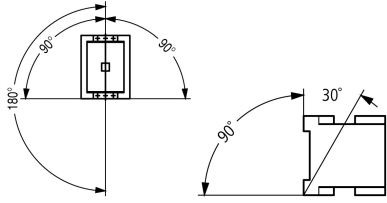
Instructions

				Contacts to EN 50 012. integrated suppressor circuit in actuating electronics with mirror contact.
Contact sequence				
Actuating voltage				RDC 24: 24 - 27 V DC
Voltage AC/DC				DC operation

Technical data

General

Standards				IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical				
DC operated	Operations	$\times 10^6$		10

Operating frequency, mechanical			
DC operated	Operations/h		5000
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open	°C		-25 - +60
Enclosed	°C		-25 - 40
Storage	°C		-40 - 80
Mounting position			
Mechanical shock resistance (IEC/EN 60068-2-27)			
Half-sinusoidal shock, 10 ms			
Main contacts			
N/O contact	g		10
Auxiliary contacts			
N/O contact	g		7
N/C contact	g		5
Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted			
Half-sinusoidal shock, 10 ms			
Main contacts			
N/O contact	g		6.9
Auxiliary contacts			
N/O contact	g		5.3
N/C contact	g		3.5
Degree of Protection			IP00
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Altitude		m	Max. 2000
Weight			
DC operated	kg		0.48
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 - 2.5) 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.) Also tested according to AC-3e.
220 V 230 V	I_e	A	32
240 V	I_e	A	32
380 V 400 V	I_e	A	32
415 V	I_e	A	32
440V	I_e	A	32
500 V	I_e	A	32
660 V 690 V	I_e	A	18
Motor rating	P	kWh	
220 V 230 V	P	kW	10
240V	P	kW	11
380 V 400 V	P	kW	15

415 V	P	kW	19
440 V	P	kW	20
500 V	P	kW	23
660 V 690 V	P	kW	17
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	6.6
Impedance per pole		mΩ	2.7

Magnet systems

Voltage tolerance			
DC operated	Pick-up	x U _c	0.7 - 1.2
Notes			RDC 24 (U _{min} 24 V DC/U _{max} 27 V DC) Example: U _S = 0.7 x U _{min} - 1.2 x U _{max} / U _S = 0.7 x 24V - 1.2 x 27V DC
DC operated	Drop-out	x U _c	0.15 - 0.6
Notes			at least smoothed two-phase bridge rectifier or three-phase rectifier
Power consumption of the coil in a cold state and 1.0 x U _S			
DC operated	Pick-up	W	12
DC operated	Sealing	W	0.9
Duty factor		% DF	100
Changeover time at 100 % U _S (recommended value)			
Main contacts			
DC operated		ms	
Closing delay		ms	
Closing delay		ms	47
Opening delay		ms	
Opening delay		ms	30
Arcing time		ms	10
Lifespan, mechanical; Coil 50/60 Hz		x 10 ⁶	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

Rating data for approved types

Switching capacity			
Maximum motor rating			
Three-phase			
200 V 208 V	HP	10	
230 V 240 V	HP	10	
460 V 480 V	HP	20	
575 V 600 V	HP	25	
Single-phase			
115 V 120 V	HP	2	
230 V 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			
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	125/125 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	192
FLA 480V 60Hz 3phase	A	32
Elevator Control		
200V 60Hz 3phase	HP	7.5
200V 60Hz 3phase	A	25.3
240V 60Hz 3phase	HP	7.5
240V 60Hz 3phase	A	22
480V 60Hz 3phase	HP	20
480V 60Hz 3phase	A	27
600V 60Hz 3phase	HP	20
600V 60Hz 3phase	A	22

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	32
Heat dissipation per pole, current-dependent	P_{vid}	W	2.2
Equipment heat dissipation, current-dependent	P_{vid}	W	6.6
Static heat dissipation, non-current-dependent	P_{vs}	W	0.9
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
10.2.3 Verification of thermal stability of enclosures			
10.2.3.1 Verification of thermal stability of enclosures			
10.2.3.2 Verification of resistance of insulating materials to normal heat			
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
10.2.4 Resistance to ultra-violet (UV) radiation			
10.2.5 Lifting			
10.2.6 Mechanical impact			
10.2.7 Inscriptions			
10.3 Degree of protection of ASSEMBLIES			
10.4 Clearances and creepage distances			
10.5 Protection against electric shock			
10.6 Incorporation of switching devices and components			
10.7 Internal electrical circuits and connections			
10.8 Connections for external conductors			
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
10.9.3 Impulse withstand voltage			
10.9.4 Testing of enclosures made of insulating material			
10.10 Temperature rise			
10.11 Short-circuit rating			
10.12 Electromagnetic compatibility			
10.13 Mechanical function			

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		0 - 0
Rated control supply voltage U_s at AC 60HZ	V		0 - 0
Rated control supply voltage U_s at DC	V		24 - 27

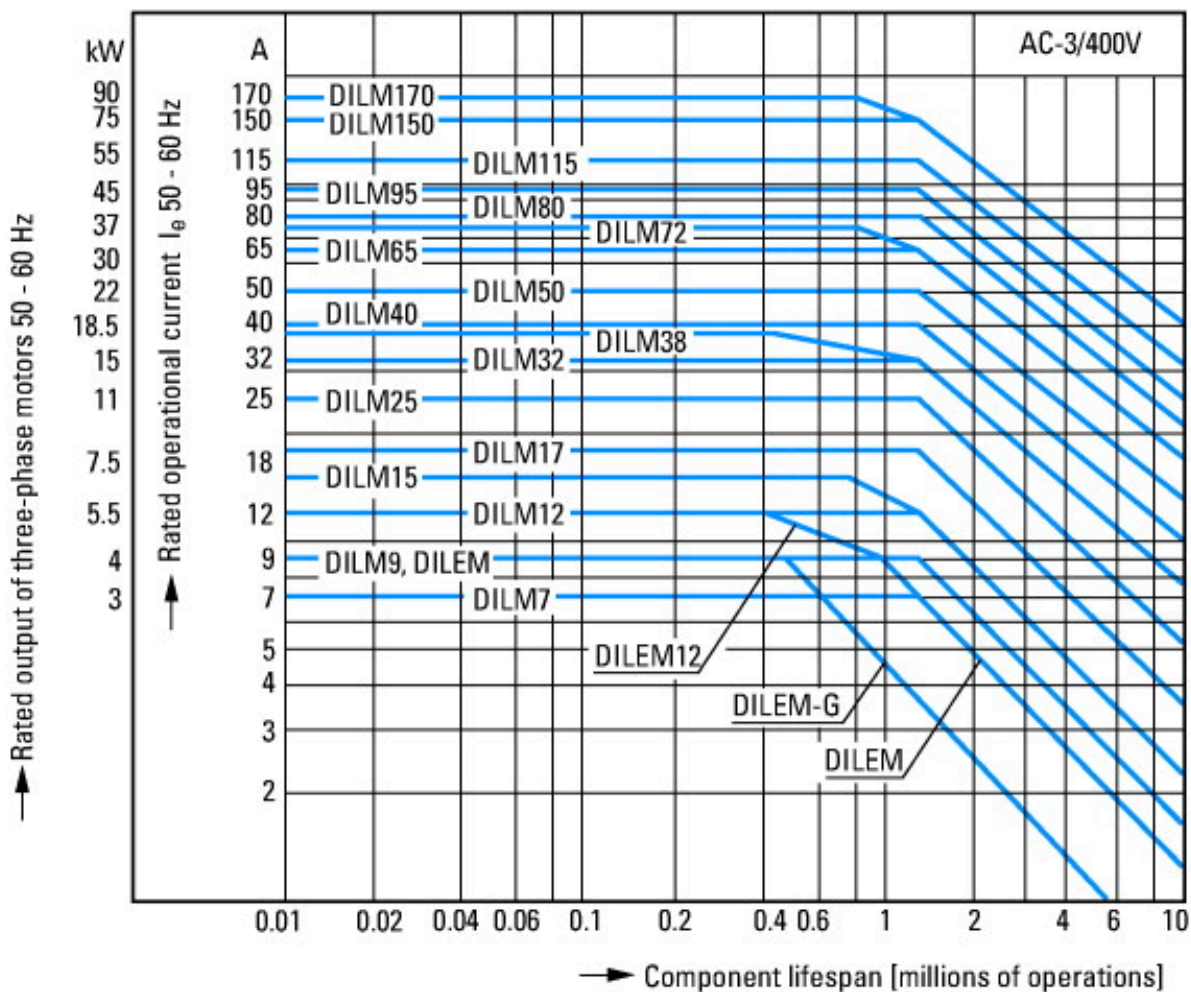
Voltage type for actuating		DC
Rated operation current I_e at AC-1, 400 V	A	45
Rated operation current I_e at AC-3, 400 V	A	32
Rated operation power at AC-3, 400 V	kW	15
Rated operation current I_e at AC-4, 400 V	A	15
Rated operation power at AC-4, 400 V	kW	7
Rated operation power NEMA	kW	14.9
Modular version		No
Number of auxiliary contacts as normally open contact		2
Number of auxiliary contacts as normally closed contact		1
Type of electrical connection of main circuit		Screw connection
Number of normally closed contacts as main contact		0
Number of main contacts as normally open contact		3

Approvals

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

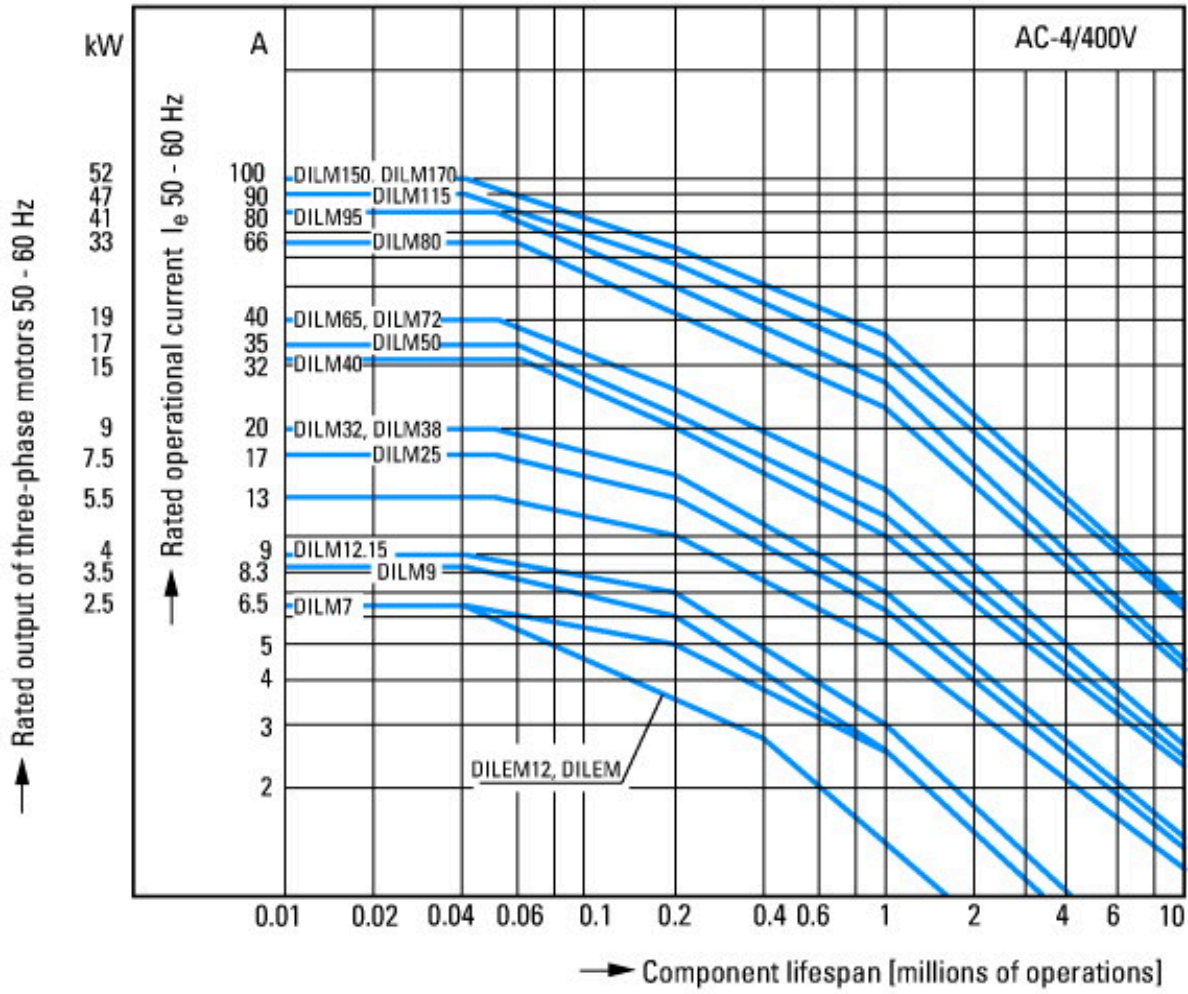
Characteristics

- 1: Overload relay
- 2: Suppressor

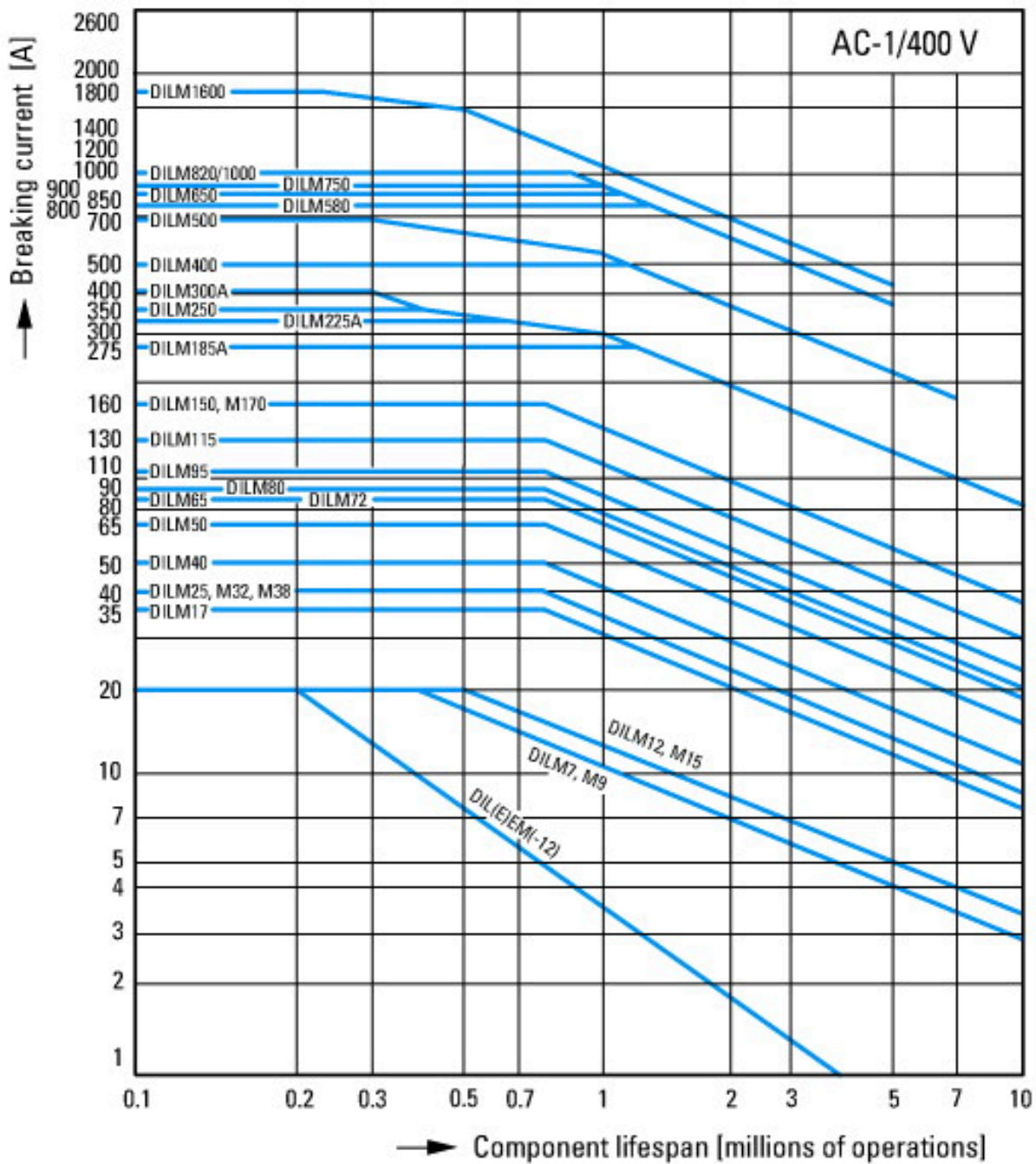


Squirrel-cage motor
Operating characteristics

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 3 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

Contactors with auxiliary contact module

distance at side to earthed parts: 6 mm

Additional product information (links)

Motor starters and "Special Purpose Ratings" for the North American market	http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf
Switchgear of Power Factor Correction Systems	http://www.moeller.net/binary/ver_techpapers/ver934en.pdf
X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely	http://www.moeller.net/binary/ver_techpapers/ver938en.pdf

Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions	http://www.moeller.net/binary/ver_techpapers/ver944en.pdf
Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors	http://www.moeller.net/binary/ver_techpapers/ver949en.pdf
Switchgear for Luminaires	http://www.moeller.net/binary/ver_techpapers/ver955en.pdf
Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	http://www.moeller.net/binary/ver_techpapers/ver956en.pdf
The Interaction of Contactors with PLCs	http://www.moeller.net/binary/ver_techpapers/ver957en.pdf
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf