

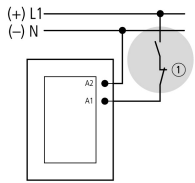


Contactor, 3p+2N/O+2N/C, 200kW/400V/AC3

Part no. DILM400-S/22(220-240V50/60HZ)
Article no. 274196
Catalog No. XTCS400M22B

Delivery programme

Product range			Contactors
Application			Contactors for Motors
Subrange			Standard devices greater than 170 A
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
Connection technique			Screw connection
Rated operational current			
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	612
enclosed	I_{th}	A	450
Conventional free air thermal current, 1 pole			
open	I_{th}	A	1250
enclosed	I_{th}	A	1125
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	P	kW	125
380 V 400 V	P	kW	200
660 V 690 V	P	kW	344
1000 V	P	kW	132
AC-4			
220 V 230 V	P	kW	92
380 V 400 V	P	kW	160
660 V 690 V	P	kW	283
1000 V	P	kW	132
Contact sequence			
Can be combined with auxiliary contact			DILM820-XHI...
Actuating voltage			220 - 240 V 50/60 Hz
Voltage AC/DC			AC operation
Contacts			
N/O = Normally open			2 N/O
N/C = Normally closed			2 N/C
Auxiliary contacts			
possible variants at auxiliary contact module fitting options			on the side: 2 x DILM820-XHI11(V)-SI; 2 x DILM820-XHI11-SA
Side mounting auxiliary contacts			
Instructions			
Notes			
DILM...-S power contactors are actuated traditionally			
			integrated suppressor circuit in actuating electronics 660 V, 690 V or 1000 V: not directly reversing



① Stopping in the event of an emergency (emergency switching off)

Technical data

General

Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	$\times 10^6$	7
DC operated	Operations	$\times 10^6$	7
Operating frequency, mechanical			
AC operated	Operations/h		2000
DC operated	Operations/h		2000
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open	°C		-40 - +60
Enclosed	°C		- 40 - + 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	10
N/C contact		g	8
Degree of Protection			IP00
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof with terminal shroud or terminal block
Weight			
AC operated		kg	8.42
DC operated		kg	8.42
Weight		kg	8.42
Terminal capacity main cable			
Flexible with cable lug		mm ²	50 - 240
Stranded with cable lug		mm ²	70 - 240
Solid or stranded		AWG	2/0 - 500 MCM
Flat conductor	Lamellenzahl x Breite x Dicke	mm	Fixing with flat cable terminal or cable terminal blocks See terminal capacity for cable terminal blocks
Busbar	Breite	mm	25
Main cable connection screw/bolt			M10
Tightening torque		Nm	24
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	2 x (18 - 12)

Control circuit cable connection screw/bolt		M3.5
Tightening torque	Nm	1.2
Tool		
Main cable		
Open-end spanner	mm	16
Control circuit cables		
Pozidriv screwdriver	Size	2

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	1000
Rated operational voltage	U_e	V AC	1000
Safe isolation to EN 61140			
between coil and contacts		V AC	500
between the contacts		V AC	500
Making capacity (p.f. to IEC/EN 60947)		A	5500
Breaking capacity			
220 V 230 V		A	5000
380 V 400 V		A	5000
500 V		A	5000
660 V 690 V		A	5000
1000 V		A	950
Component lifespan			
			AC1: See → Engineering, characteristic curves AC3: See → Engineering, characteristic curves AC4: See → Engineering, characteristic curves
Short-circuit rating			
Short-circuit protection maximum fuse			
Type “2” coordination			
400 V	gG/gL 500 V	A	500
690 V	gG/gL 690 V	A	500
1000 V	gG/gL 1000 V	A	200
Type “1” coordination			
400 V	gG/gL 500 V	A	630
690 V	gG/gL 690 V	A	630
1000 V	gG/gL 1000 V	A	250

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	612
at 50 °C	$I_{th} = I_e$	A	548
at 55 °C	$I_{th} = I_e$	A	522
at 60 °C	$I_{th} = I_e$	A	500
enclosed	I_{th}	A	450
Notes			At maximum permissible ambient air temperature.
Conventional free air thermal current, 1 pole			
Note			at maximum permissible ambient air temperature
open	I_{th}	A	1250
enclosed	I_{th}	A	1125
AC-3			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	400
240 V	I_e	A	400

415 V	I _e	A	400
440V	I _e	A	400
500 V	I _e	A	400
660 V 690 V	I _e	A	360
1000 V	I _e	A	95
Motor rating	P	kWh	
220 V 230 V	P	kW	125
240V	P	kW	132
380 V 400 V	P	kW	200
415 V	P	kW	240
440 V	P	kW	200
500 V	P	kW	290
660 V 690 V	P	kW	344
1000 V	P	kW	132
AC-4			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I _e	A	296
240 V	I _e	A	296
380 V 400 V	I _e	A	296
415 V	I _e	A	296
440 V	I _e	A	296
500 V	I _e	A	296
660 V 690 V	I _e	A	296
1000 V	I _e	A	95
Motor rating	P	kWh	
220 V 230 V	P	kW	92
240 V	P	kW	101
380 V 400 V	P	kW	160
415 V	P	kW	176
440 V	P	kW	186
500 V	P	kW	214
660 V 690 V	P	kW	283
1000 V	P	kW	132

Condensor operation

Individual compensation, rated operational current I _e of three-phase capacitors			
Open			
up to 525 V		A	307
690 V		A	177
Max. inrush current peak		x I _e	30
Component lifespan	Operations	x 10 ⁶	0.1
Max. operating frequency		Ops/h	200

DC

Rated operational current, open			
DC-1			
60 V	I _e	A	400
110 V	I _e	A	400
220 V	I _e	A	400
440 V	I _e	A	11
DC-3			
60 V	I _e	A	400
110 V	I _e	A	400
220 V	I _e	A	400
DC-5			

60 V	I _e	A	400
110 V	I _e	A	400
220 V	I _e	A	400

Current heat loss

3-pole at I _{th}		W	58
Current heat loss at I _e to AC-3/400 V		W	37

Magnet systems

Voltage tolerance		x U _c	
U _C			220 - 240 V 50/60 Hz
AC operated	Pick-up	x U _C	0.85 x U _{C min} - 1.1 x U _{C max}
AC operated	Drop-out	x U _C	0.2 x U _{C min} - 0.4 x U _{C max}
Power consumption of the coil in a cold state and 1.0 x U _C			
Note on power consumption			u _k ≙ 10%
Pull-in power	Pick-up	VA	715
Pull-in power	Pick-up	W	645
Sealing power	Sealing	VA	4.3
Sealing power	Sealing	W	3.3
Duty factor		% DF	100
Switching times at 100 % U _C (approximate values)			
Main contacts			
Closing delay		ms	55
Opening delay		ms	50
Behaviour in marginal and transitional conditions			
Sealing			
Voltage interruptions			
(0 ... 0.2 x U _{C min}) ≙ 10 ms			Time is bridged successfully
(0 ... 0.2 x U _{C min}) > 10 ms			Drop-out of the contactor
Voltage drops			
(0.2 ... 0.6 x U _{C min}) ≙ 12 ms			Time is bridged successfully
(0.2 ... 0.6 x U _{C min}) > 12 ms			Drop-out of the contactor
(0.6 ... 0.7 x U _{C min})			Contactor remains switched on
Excess voltage			
(1.15 ... 1.3 x U _{C max})			Contactor remains switched on
Pick-up phase			
(0 ... 0.7 x U _{C min})			Contactor does not switch on
(0.7 x U _{C min} ... 1.15 x U _{C max})			Contactor switches on with certainty
Admissible transitional contact resistance (of the external control circuit device when actuating A11)		mΩ	≙ 500
PLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2)			
High		V	15
Low		V	5

Electromagnetic compatibility (EMC)

Electromagnetic compatibility			This product is designed for operation in industrial environments (environment 2). The use in residential environments (environment 1) could cause electrical interference so that addition suppression must be planned.
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Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	400
Heat dissipation per pole, current-dependent	P _{vid}	W	12.33
Equipment heat dissipation, current-dependent	P _{vid}	W	0
Static heat dissipation, non-current-dependent	P _{vs}	W	3.3
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-40

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.

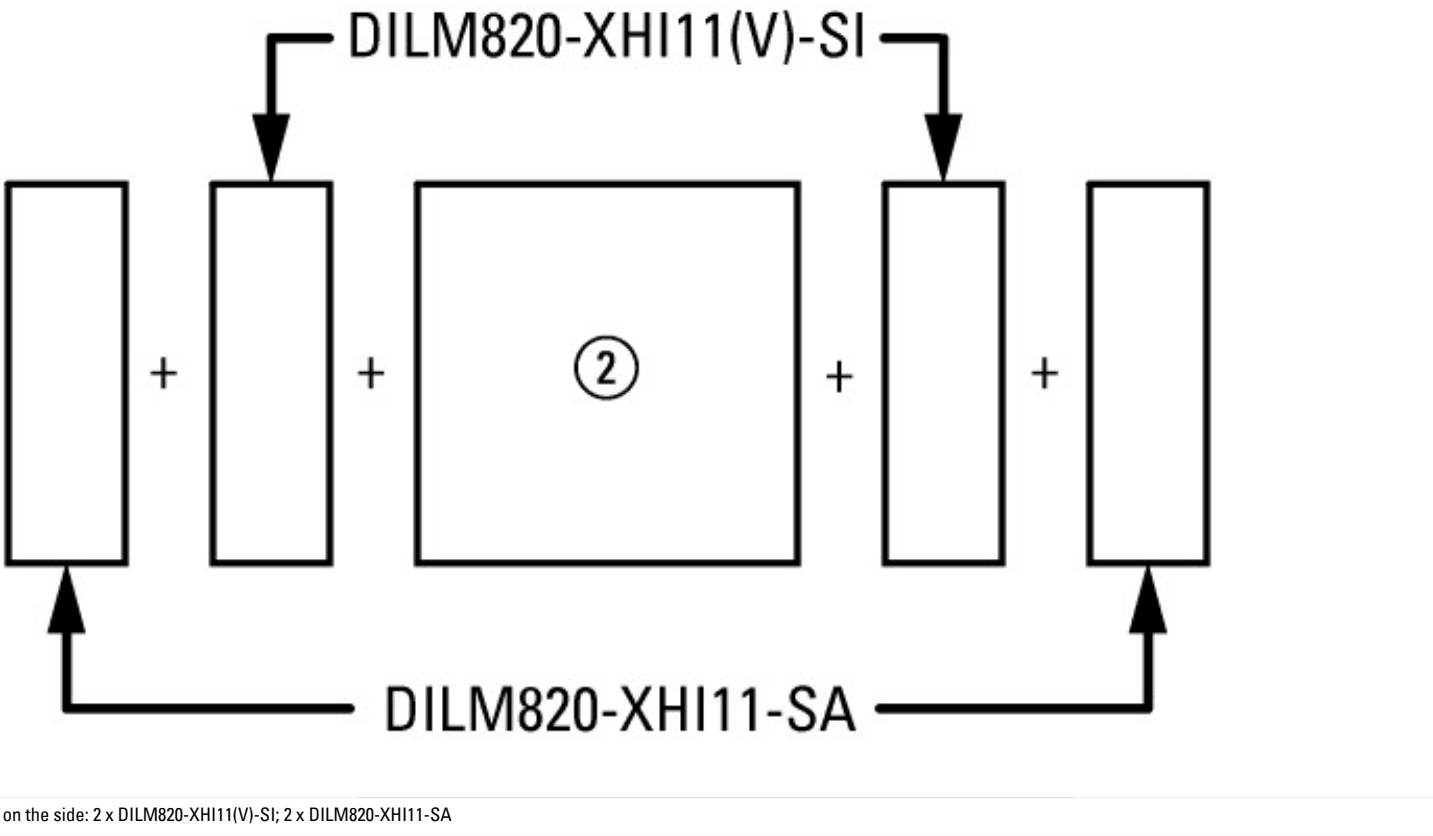
Technical data ETIM 6.0

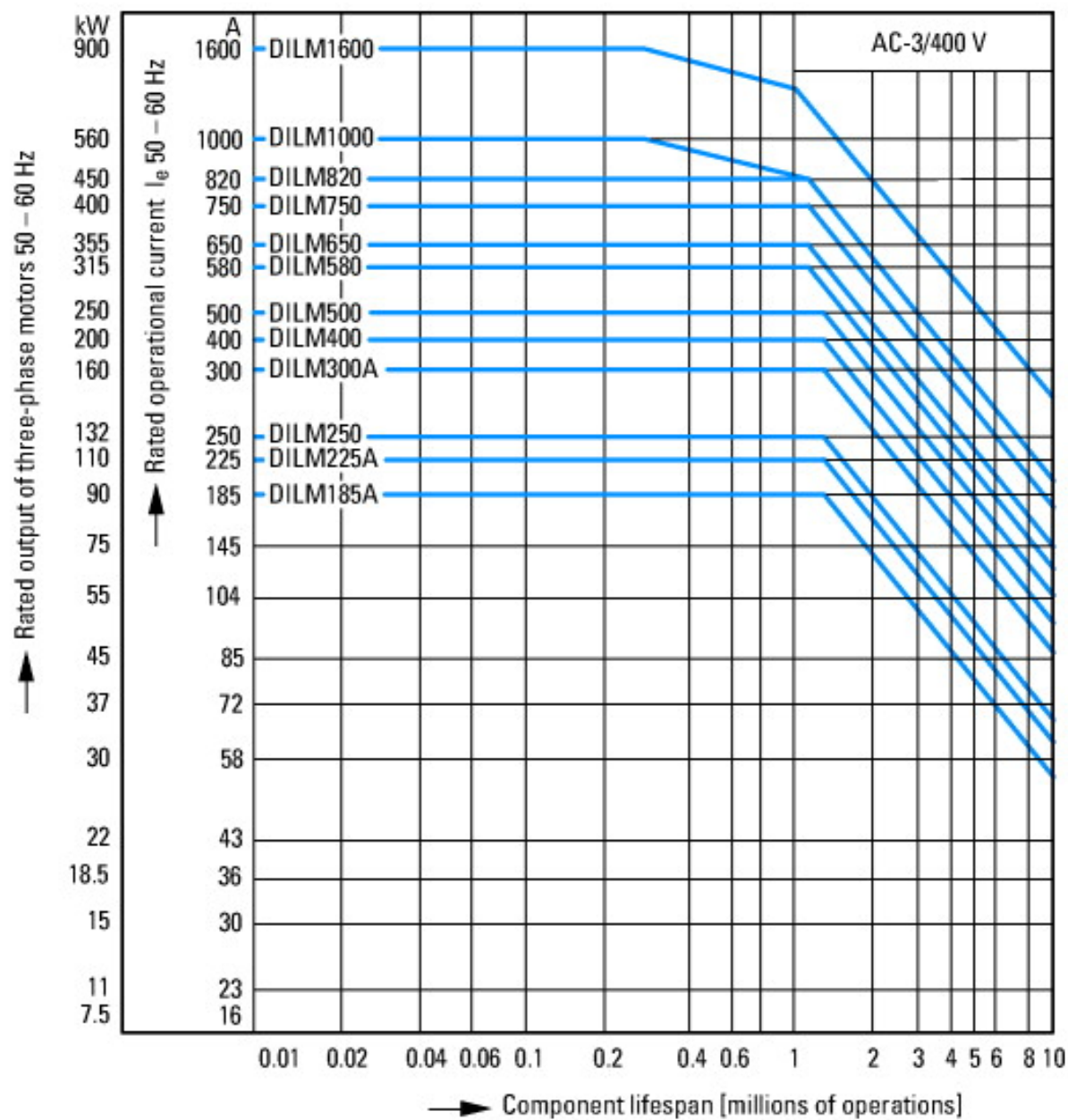
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss8.1-27-37-10-03 [AAB718012])			
Rated control supply voltage Us at AC 50HZ	V		220 - 240
Rated control supply voltage Us at AC 60HZ	V		220 - 240
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		612
Rated operation current Ie at AC-3, 400 V	A		400
Rated operation power at AC-3, 400 V	kW		200
Rated operation current Ie at AC-4, 400 V	A		296
Rated operation power Ie at AC-4, 400 V	kW		160
Modular version			No
Number of auxiliary contacts as normally open contact			2
Number of auxiliary contacts as normally closed contact			2
Type of electrical connection of main circuit			Rail connection
Number of normally closed contacts as main contact			0
Number of main contacts as normally open contact			3

Approvals

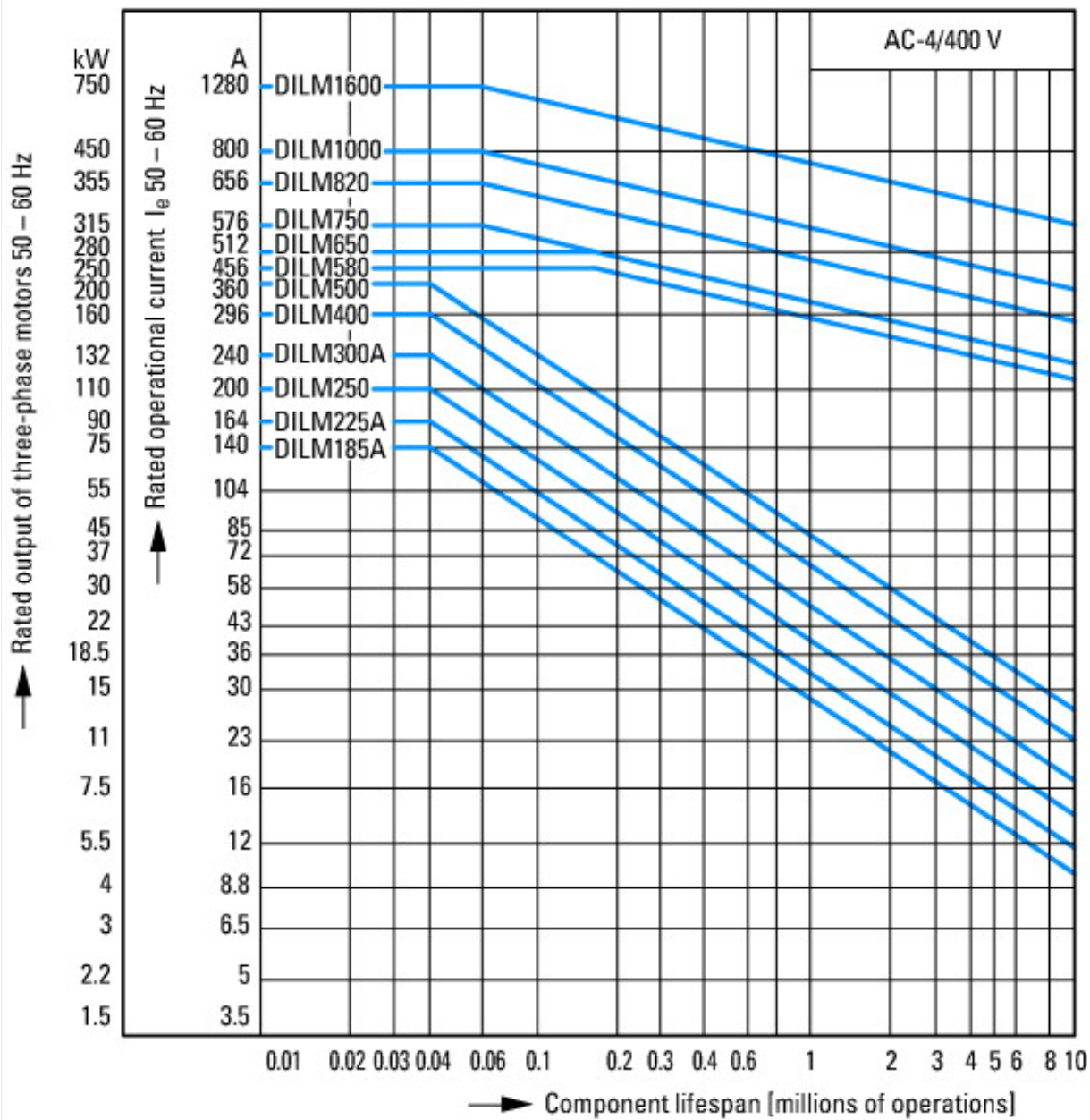
Product Standards			IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.			E29096
UL Category Control No.			NLDX
CSA File No.			012528
CSA Class No.			3211-04
North America Certification			UL listed, CSA certified

Characteristics

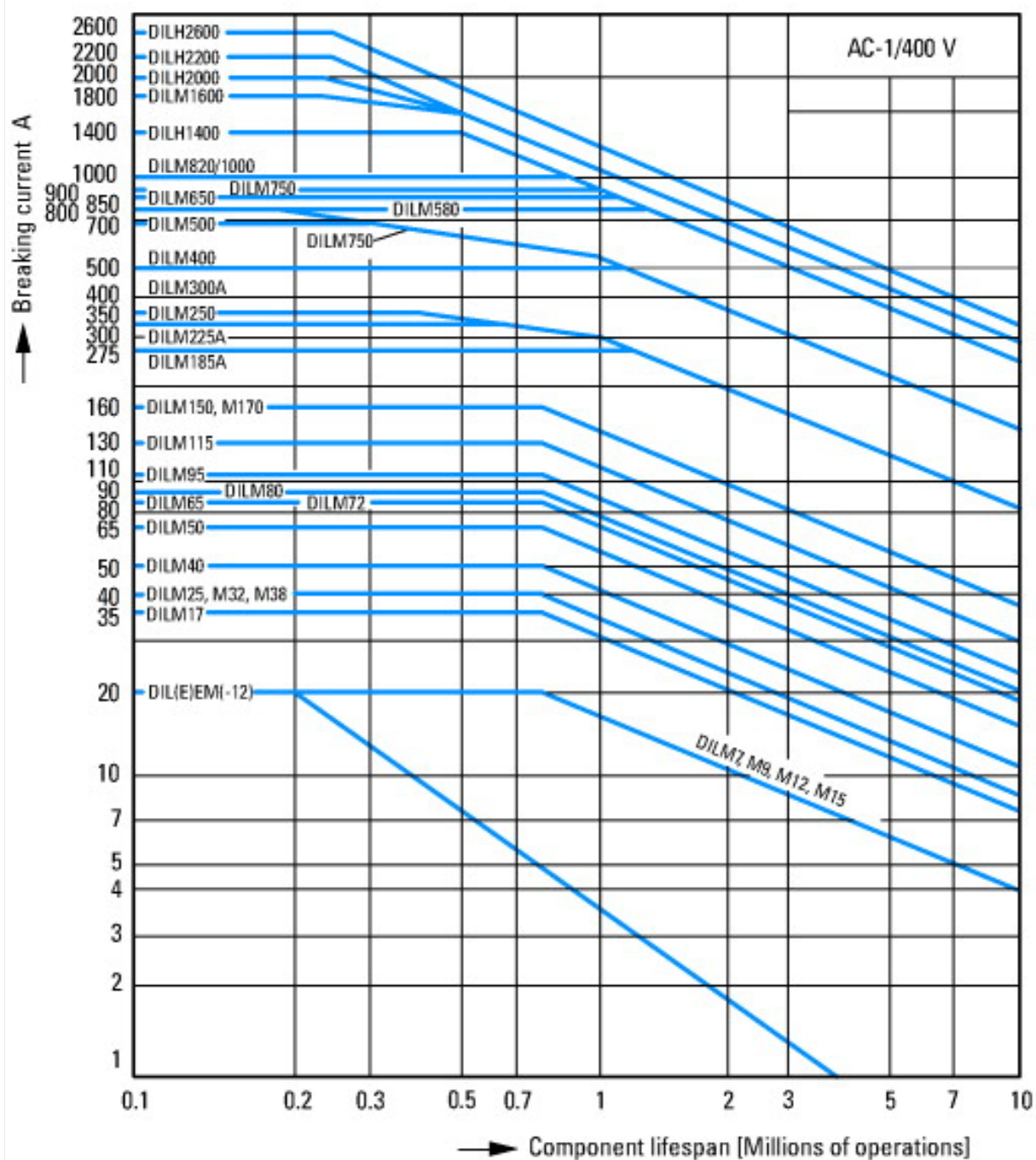




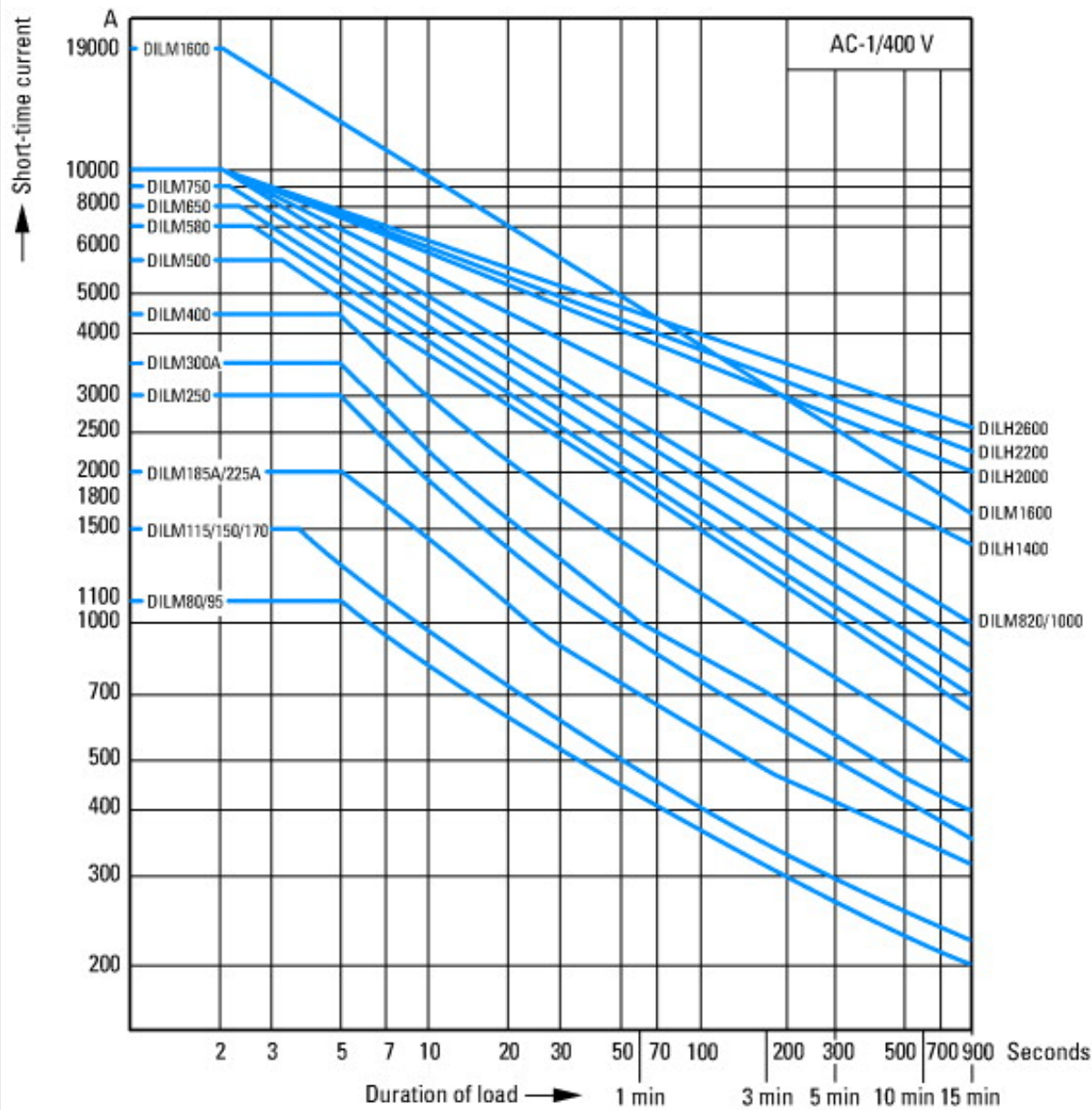
Normal switching duty
 Normal AC induction motor
 Operating characteristics
 Switch on: from stop
 Switch off: during run
 Electrical characteristics:
 Switch on: up to 6 x Rated motor current
 Switch off: up to 1 x Rated motor current
 Utility category
 100 % AC-3
 Typical Applications
 Compressors
 Lifts
 Mixers
 Pumps
 Escalators
 Agitators
 fan
 Conveyor belts
 Centrifuges
 Hinged flaps
 Bucket-elevator
 Air-conditioning systems
 General drives for 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

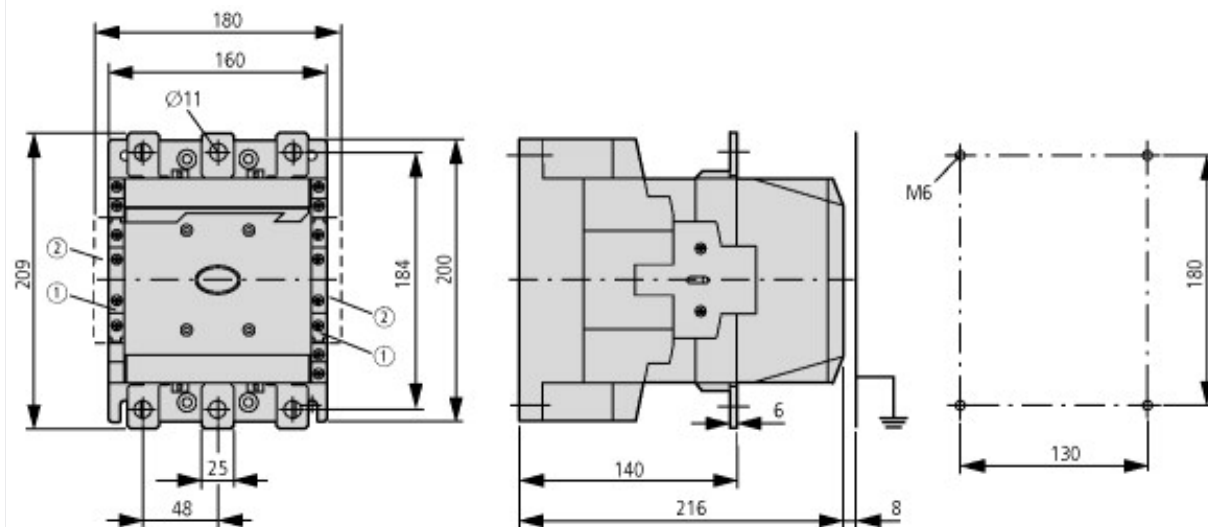


Switching duty for non-motor loads, 3-pole, 4-pole
 Operating characteristics
 Non-inductive or slightly inductive loads
 Electrical characteristics
 Make: 1 x rated current
 Break: 1 x rated current
 Utilization category
 100 % AC-1
 Typical applications
 Electric heat



Short-time loading, 3-pole
Time interval between two loading cycles: 15 minutes

Dimensions



- ① DILM820-XHI11(V)-SI
- ② DILM820-XHI11-SA

Additional product information (links)

IL03406002Z (AWA2100-1639) Contactors >170 A	
IL03406002Z (AWA2100-1639) Contactors >170 A	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03406002Z2012_09.pdf
IL03406005Z (AWA2100-2212) Contactors >170 A	
IL03406005Z (AWA2100-2212) Contactors >170 A	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03406005Z2010_07.pdf
UL/CSA: Approved rating data	http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&startpage=5.84
UL/CSA: UL/CSA: Short Circuit Current Rating (SCCR)	http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&startpage=5.86
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
Motor starters and "Special Purpose Ratings" for the North American market	http://www.moeller.net/binary/ver_techpapers/ver953en.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