



Contactor, 3p+2N/O+2N/C, 160kW/400V/AC3



Powering Business Worldwide™

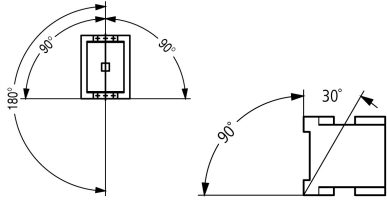
Part no. **DILM300A/22(RAC500)**
 Article no. **139557**
 Catalog No. **XTCE300L22C**

Delivery program

Product range			Contactors
Application			Contactors for Motors
Subrange			Comfort 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	490
enclosed	I_{th}	A	315
Conventional free air thermal current, 1 pole			
open	I_{th}	A	875
enclosed	I_{th}	A	785
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	P	kW	90
380 V 400 V	P	kW	160
660 V 690 V	P	kW	240
1000 V	P	kW	132
AC-4			
220 V 230 V	P	kW	75
380 V 400 V	P	kW	132
660 V 690 V	P	kW	160
1000 V	P	kW	109
Contact sequence			
Can be combined with auxiliary contact			DILM820-XHI...
Actuating voltage			RAC 500: 250 - 500 V 40 - 60 Hz/250 - 700 V DC
Voltage AC/DC			AC and DC operation
Contacts			
N/O = Normally open			2 N/O
N/C = Normally closed			2 NC
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			integrated suppressor circuit in actuating electronics 660 V, 690 V or 1000 V: not directly reversing

Technical data

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

DC operated	Operations	x 10 ⁶	10
Operating frequency, mechanical			
AC operated	Operations/h		3000
DC operated	Operations/h		3000
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			
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	7.1
DC operated		kg	7.1
Weight		kg	7.1
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			
Width across flats		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	3600
Breaking capacity			
220 V 230 V		A	3000
380 V 400 V		A	3000
500 V		A	3000
660 V 690 V		A	3000
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	400
690 V	gG/gL 690 V	A	315
1000 V	gG/gL 1000 V	A	160
Type "1" coordination			
400 V	gG/gL 500 V	A	500
690 V	gG/gL 690 V	A	400
1000 V	gG/gL 1000 V	A	200

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	490
at 50 °C	$I_{th} = I_e$	A	438
at 55 °C	$I_{th} = I_e$	A	418
at 60 °C	$I_{th} = I_e$	A	400
enclosed	I_{th}	A	315
Notes			
Conventional free air thermal current, 1 pole			
Note			
at maximum permissible ambient air temperature			
open	I_{th}	A	875
enclosed	I_{th}	A	785
AC-3			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	300
240 V	I_e	A	300
415 V	I_e	A	300
440V	I_e	A	300
500 V	I_e	A	300
660 V 690 V	I_e	A	250
1000 V	I_e	A	95
Motor rating			
220 V 230 V	P	kWh	90
240V	P	kWh	100
380 V 400 V	P	kWh	160
415 V	P	kWh	180
440 V	P	kWh	185

500 V	P	kW	215
660 V 690 V	P	kW	240
1000 V	P	kW	132
AC-4			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	200
240 V	I_e	A	200
380 V 400 V	I_e	A	200
415 V	I_e	A	200
440 V	I_e	A	200
500 V	I_e	A	200
660 V 690 V	I_e	A	200
1000 V	I_e	A	76
Motor rating			
220 V 230 V	P	kW	75
240 V	P	kW	82
380 V 400 V	P	kW	132
415 V	P	kW	142
440 V	P	kW	150
500 V	P	kW	172
660 V 690 V	P	kW	160
1000 V	P	kW	109

Condensator 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		$\times I_e$	30
Component lifespan	Operations	$\times 10^6$	0.1
Max. operating frequency		Ops/h	200

DC

Rated operational current, open			
DC-1			
60 V	I_e	A	300
110 V	I_e	A	300
220 V	I_e	A	300
440 V	I_e	A	11
DC-3			
60 V	I_e	A	300
110 V	I_e	A	300
220 V	I_e	A	300
DC-5			
60 V	I_e	A	300
110 V	I_e	A	300
220 V	I_e	A	300

Current heat loss

3-pole at I_{th}		W	37
Current heat loss at I_e to AC-3/400 V		W	21

Magnet systems

Voltage tolerance			
U_S			250 - 500 V 40-60 Hz 250 - 700 V DC
AC operated	Pick-up	$\times U_S$	$0.7 \times U_{S \min} - 1.15 \times U_{S \max}$
DC operated	Pick-up	$\times U_S$	$0.7 \times U_{S \min} - 1.15 \times U_{S \max}$

AC operated	Drop-out	$x U_S$	$0.2 \times U_{S \max} - 0.6 \times U_{S \min}$
DC operated	Drop-out	$x U_S$	$0.2 \times U_{S \max} - 0.6 \times U_{S \min}$
Power consumption of the coil in a cold state and $1.0 \times U_c$			
Note on power consumption			Control transformer with $u_k \approx 0.6$
Pull-in power	Pick-up	VA	380
Pull-in power	Pick-up	W	250
Sealing power	Sealing	VA	13
Sealing power	Sealing	W	10.8
Duty factor		% DF	100
Changeover time at 100 % U_c (recommended value)			
Main contacts			
Closing delay		ms	100
Opening delay		ms	110
Behaviour in marginal and transitional conditions			
Sealing			
Voltage interruptions			
$(0 \dots 0.2 \times U_{c \min}) \approx 10 \text{ ms}$			Time is bridged successfully
$(0 \dots 0.2 \times U_{c \min}) > 10 \text{ ms}$			Drop-out of the contactor
Voltage drops			
$(0.2 \dots 0.6 \times U_{c \min}) \approx 12 \text{ ms}$			Time is bridged successfully
$(0.2 \dots 0.6 \times U_{c \min}) > 12 \text{ ms}$			Drop-out of the contactor
$(0.6 \dots 0.7 \times U_{c \min})$			Contactor remains switched on
Excess voltage			
$(1.15 \dots 1.3 \times U_{c \max})$			Contactor remains switched on
Pick-up phase			
$(0 \dots 0.7 \times U_{c \min})$			Contactor does not switch on
$(0.7 \times U_{c \min} \dots 1.15 \times U_{c \max})$			Contactor switches on with certainty
Admissible transitional contact resistance (of the external control circuit device when actuating A11)		m Ω	≈ 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	300
Heat dissipation per pole, current-dependent	P_{vid}	W	7
Equipment heat dissipation, current-dependent	P_{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	10.8
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.

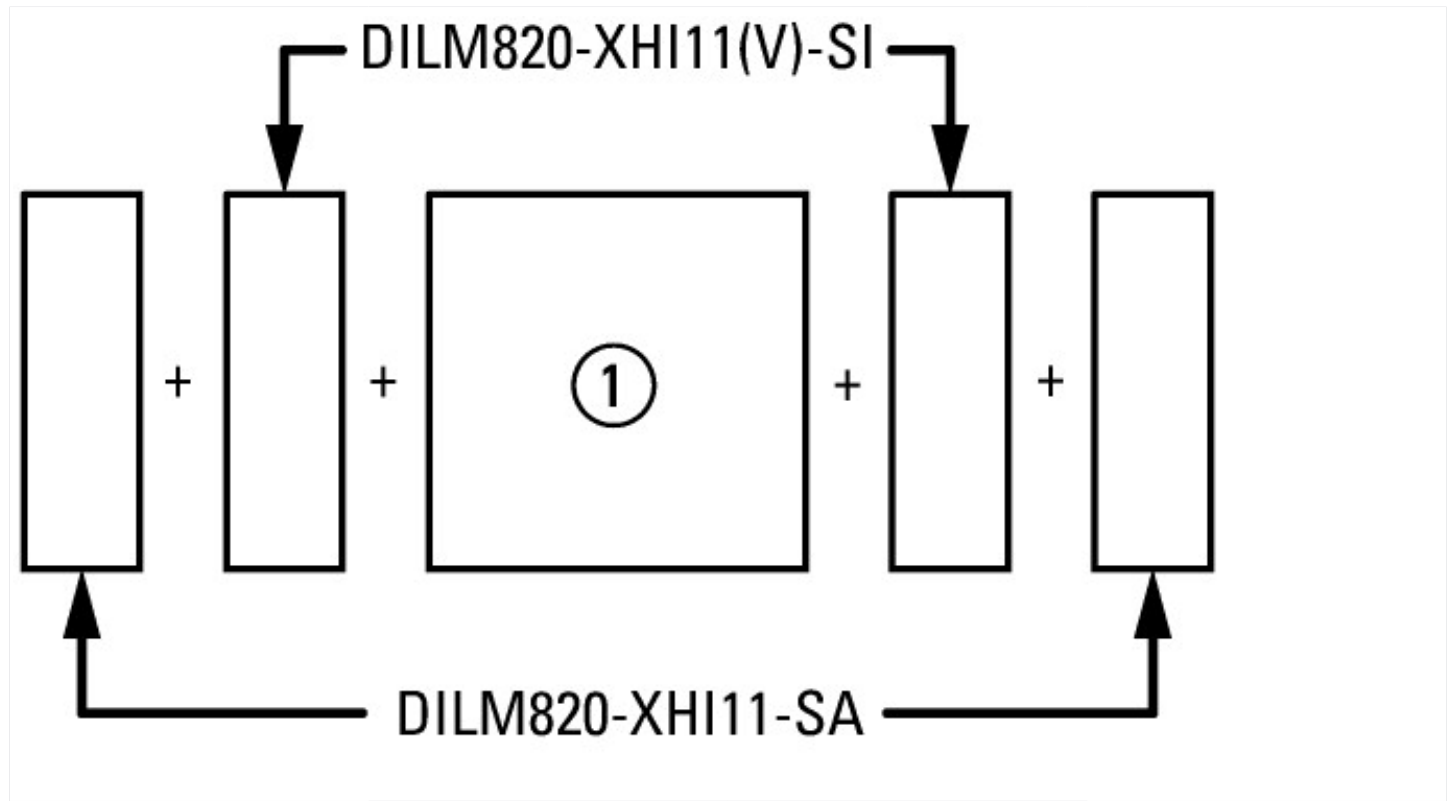
10.2.5 Lifting		Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact		Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions		Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES		Does not apply, since 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

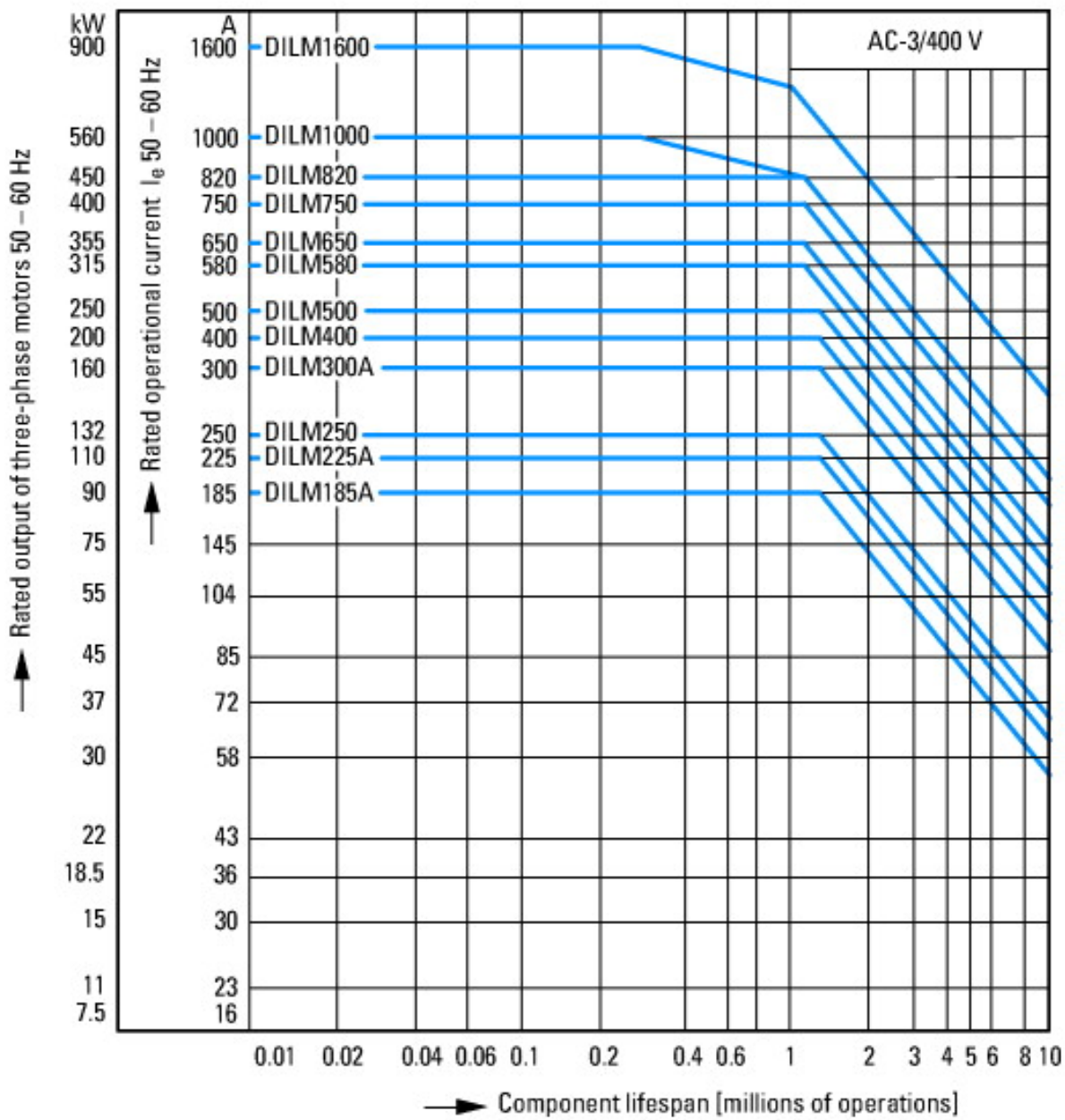
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss8.1-27-37-10-03 [AAB718012])		
Rated control supply voltage Us at AC 50HZ	V	250 - 500
Rated control supply voltage Us at AC 60HZ	V	250 - 500
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	490
Rated operation current Ie at AC-3, 400 V	A	300
Rated operation power at AC-3, 400 V	kW	160
Rated operation current Ie at AC-4, 400 V	A	240
Rated operation power Ie at AC-4, 400 V	kW	132
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

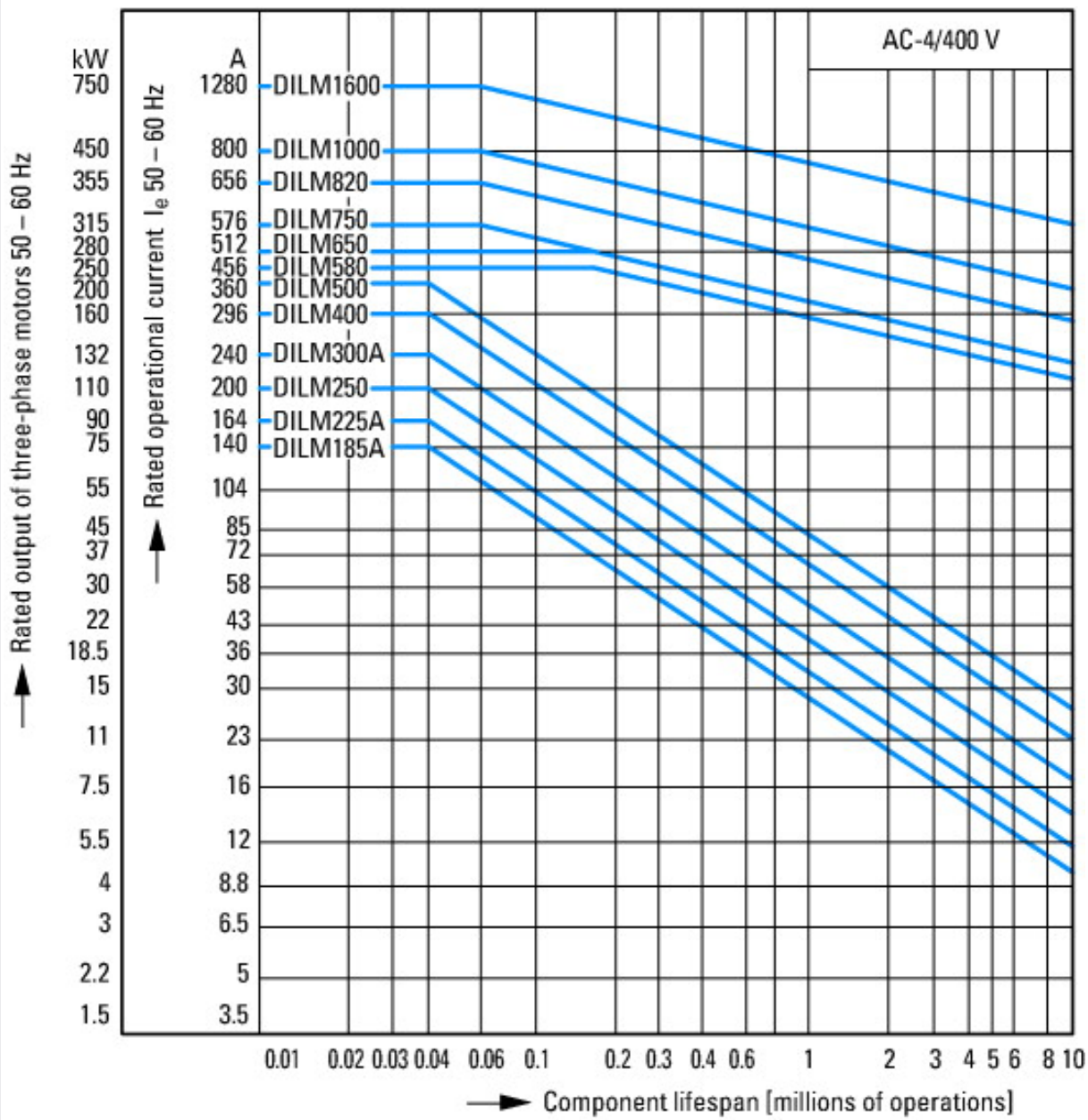
Product Standards		IEC/EN 60947-4-1; UL508;CSA-C22.2 No.14-05; CE marking
UL File No.		E29096
UL Category Control No.		NLDX
CSA File No.		1017510
CSA Class No.		3211-04
North America Certification		UL listed, CSA certified
Specially designed for North America		No



on the side: 2 x DILM820-XHI11(V)-SI; 2 x DILM820-XHI11-SA



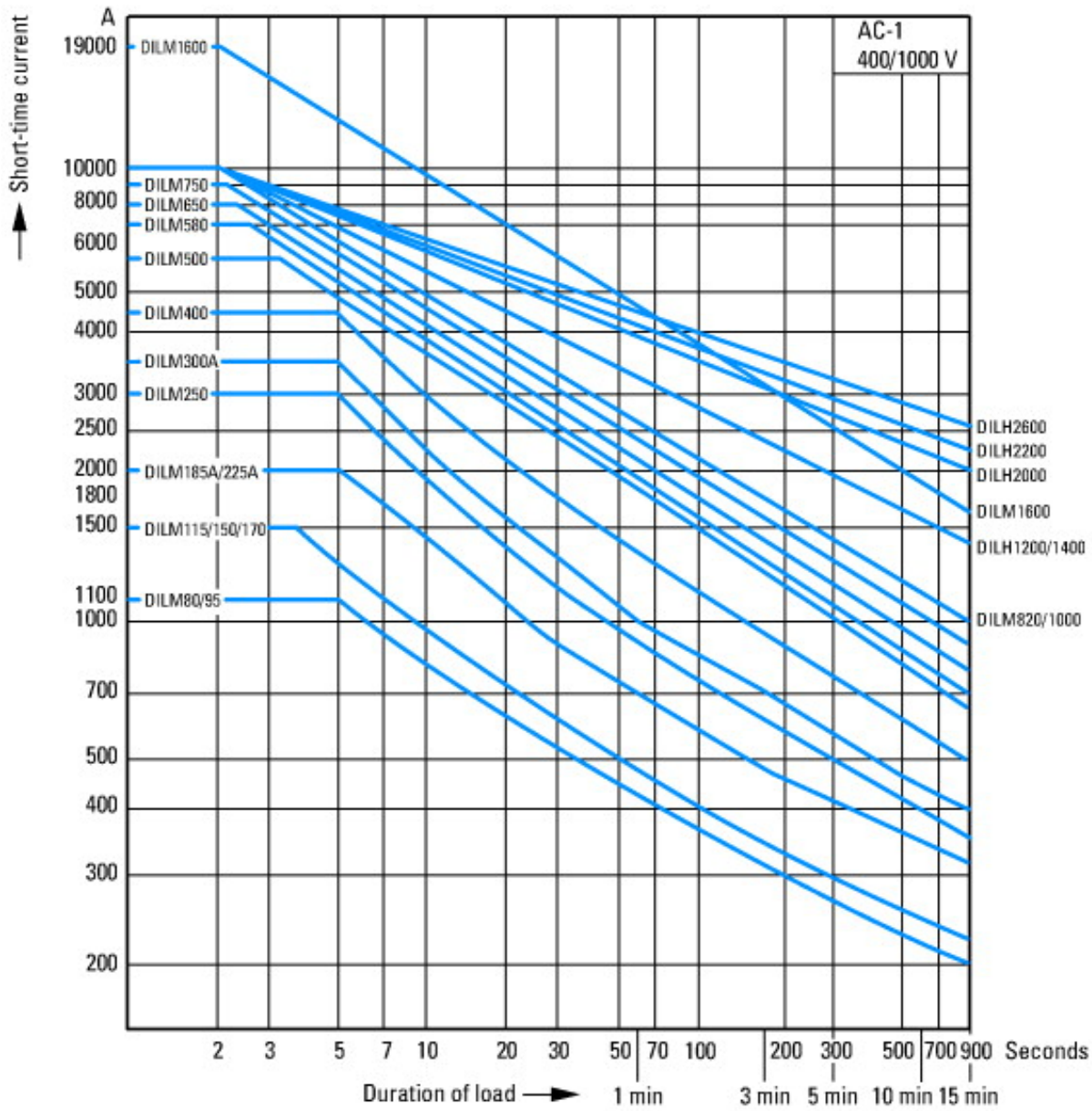
- Normal switching duty
- Normal AC induction motor
- Operating characteristics
- Switch on: from stop
- Switch off: during run
- Electrical characteristics:
- Switch on: up to 6 x Rated motor current
- Switch off: up to 1 x Rated motor current
- Utility category
- 100 % AC-3
- Typical Applications
- 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

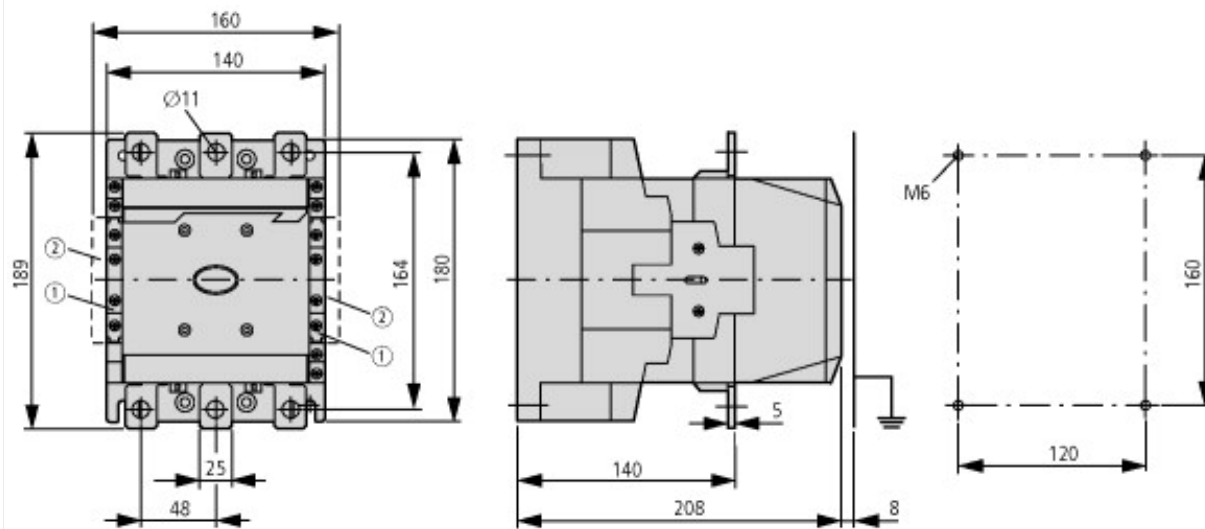


Switching conditions for 3 pole, non-motor loads
 Operating characteristics
 Non inductive and slightly inductive loads
 Electrical characteristics
 Switch on: 1 x rated operational current
 Switch off: 1 x rated operational current
 Utilization category
 100 % AC-1
 Typical examples of application
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



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