

Contactor 110kW/400V/AC-3



Powering Business Worldwide™

Part no.

DILM225-S/22(220-240V50/60HZ)

Article no.

274187

Program

Product range			Contactors
Application			Contactors for Motors
Subrange			Standard devices greater than 150 A
Connection technique			Screw terminals
Rated operational current			
AC-3			
400 V	I_e	A	225
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th}=I_e$	A	386
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	P	kW	70
380 V 400 V	P	kW	110
660 V 690 V	P	kW	215
AC-4			
220 V 230 V	P	kW	51
380 V 400 V	P	kW	90
660 V 690 V	P	kW	155
Contact sequence			
Can be combined with auxiliary contact			DILM820-XHI...
Actuating voltage			220 - 240 V 50/60 Hz
Contacts			
N/O = Normally open			2 N/O
N/C = Normally closed			2 B
Instructions			integrated suppressor circuit in actuating electronics 660 V, 690 V or 1000 V: not directly reversing
Notes			
DILM...-S contactors are triggered in the conventional manner			
Standstill in an emergency (Emergency-Stop)			

Approbationen

Product Standards

UL File No.

UL CCN

CSA File No.

CSA Class No.

NA Certification

Specially designed for NA

IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking

E29096

NLDX

1017510

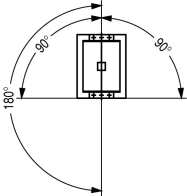
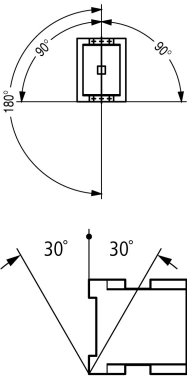
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UL listed, CSA certified

No

General

Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	x 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			
Ambient temperature		°C	
Open		°C	- 25 - 60
Enclosed		°C	- 25 - 40
Storage		°C	- 40 - 80
Mounting position			
			
Mounting position, AC- and DC operated			
			
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
Protection type			
Protection against direct contact when actuated from front (EN 90274)			IP00
Protection against direct contact when actuated from front (EN 90274)			
finger and back-of-hand proof with terminal shroud or terminal block			
Weight			
AC operated		kg	6.5
DC operated		kg	6.5
Weight		kg	6.5
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	Number of segments x width x thickness	mm	Fixing with flat cable terminal or cable terminal blocks See terminal capacity for cable terminal blocks
Busbar	Width	mm	20
Main cable connection screw/bolt			
Main cable connection screw/bolt			M10
Tightening torque			
Tightening torque			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			
AC	U_i	V AC	1000
Rated operational voltage	U_e	V AC	1000
Safe isolation to VDE 0106 Part 101 and Part 101/A1			
between coil and contacts		V AC	500
between the contacts		V AC	500
Making capacity (p.f. to IEC/EN 60947)		A	3000
Breaking capacity			
220/230 V		A	2500
380/400 V		A	2500
500 V		A	2500
660/690 V		A	2500
1000 V		A	760
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	315
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	400
690 V	gG/gL 690 V	A	400
1000 V	gG/gL 1000 V	A	200

AC

AC-1 duty			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	386
at 50 °C	$I_{th} = I_e$	A	345
at 55 °C	$I_{th} = I_e$	A	329
at 60 °C	$I_{th} = I_e$	A	315
enclosed	I_{th}	A	275
Conventional free air thermal current, 1 pole			
open	I_{th}	A	785
enclosed	I_{th}	A	685
AC-3 duty			
Rated operational current AC-3 open, 50 - 60 Hz, 3 pole	I_e		

220/230 V	I_e	A	225
240 V	I_e	A	225
380/400 V	I_e	A	225
415 V	I_e	A	225
440V	I_e	A	225
500 V	I_e	A	225
660/690 V	I_e	A	225
1000 V	I_e	A	76
Motor rating	P	kWh	
220/230 V	P	kW	70
240V	P	kW	75
380/400 V	P	kW	110
415 V	P	kW	132
440 V	P	kW	110
500 V	P	kW	160
660/690 V	P	kW	215
1000 V	P	kW	108
AC-4 duty			
Rated operational current AC-4 open, 50 - 60 Hz, 3 pole	I_e		
220/230 V	I_e	A	164
240 V	I_e	A	164
380/400 V	I_e	A	164
415 V	I_e	A	164
440 V	I_e	A	164
500 V	I_e	A	164
660/690 V	I_e	A	164
1000 V	I_e	A	76
Motor rating	P	kWh	
220/230 V	P	kW	51
240 V	P	kW	54
380/400 V	P	kW	90
415 V	P	kW	96
440 V	P	kW	102
500 V	P	kW	116
660/690 V	P	kW	155
1000 V	P	kW	108

Condensator operation

Individual compensation, rated operational current I_e of three-phase capacitors			
open			
up to 525 V		A	220
690 V		A	133
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 operation			
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 operation			

60 V	I_e	A	300
110 V	I_e	A	300
220 V	I_e	A	300
DC-5 operation			
60 V	I_e	A	300
110 V	I_e	A	300
220 V	I_e	A	300

Current heat loss (3 pole)

Current heat loss at I_{th}		W	45
Current heat loss at I_e to AC-3/400 V		W	23

Magnet systems

Voltage tolerance		$x U_c$	
U_c			220 - 240 V 50/60 Hz
AC operated	Pick-up	$x U_c$	
	Pick-up	$x U_c$	$0.8 \times U_{c \min} - 1.15 \times U_{c \max}$
Drop-out voltage AC operated	Drop-out	$x U_c$	
	Drop-out	$x U_c$	$0.25 \times U_{c \min} - 0.6 \times U_{c \max}$
Power consumption of the coil in a cold state and $1.0 \times U_c$			
50 Hz	Pick-up	VA	380
AC operated	Pick-up	W	250
60 Hz	Pick-up	VA	360
60 Hz	Pick-up	W	325
Dual-frequency coil 50/60 Hz at 50 Hz	Sealing	VA	4.3
Dual-frequency coil 50/60 Hz at 50 Hz	Sealing	W	3.3
Dual-frequency coil 50/60 Hz at 60 Hz	Sealing	VA	4.3
Dual-frequency coil 50/60 Hz at 60 Hz	Sealing	W	3.3
Duty factor		% DF	100
Switching times at 100 % U_c (approximate values)			
Main contacts			
AC operated			
	Closing delay	ms	100
	Opening delay	ms	80
DC operated			
	Closing delay	ms	50
	Opening delay	ms	40
Behaviour in marginal and transitional conditions			
Sealing			
Voltage interruptions			
	$(0 \dots 0.2 \times U_{c \min})$  10 ms		Time is bridged successfully
	$(0 \dots 0.2 \times U_{c \min}) > 10$ ms		Drop-out of the contactor
Voltage drops			
	$(0.2 \dots 0.6 \times U_{c \min})$  12 ms		Time is bridged successfully
	$(0.2 \dots 0.6 \times U_{c \min}) > 12$ 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
	$(> 1.3 \times U_{c \max})$  3 s		Contactor remains switched on
	$(> 1.3 \times U_{c \max}) > 3$ s		Drop-out of the contactor
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

(> 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)

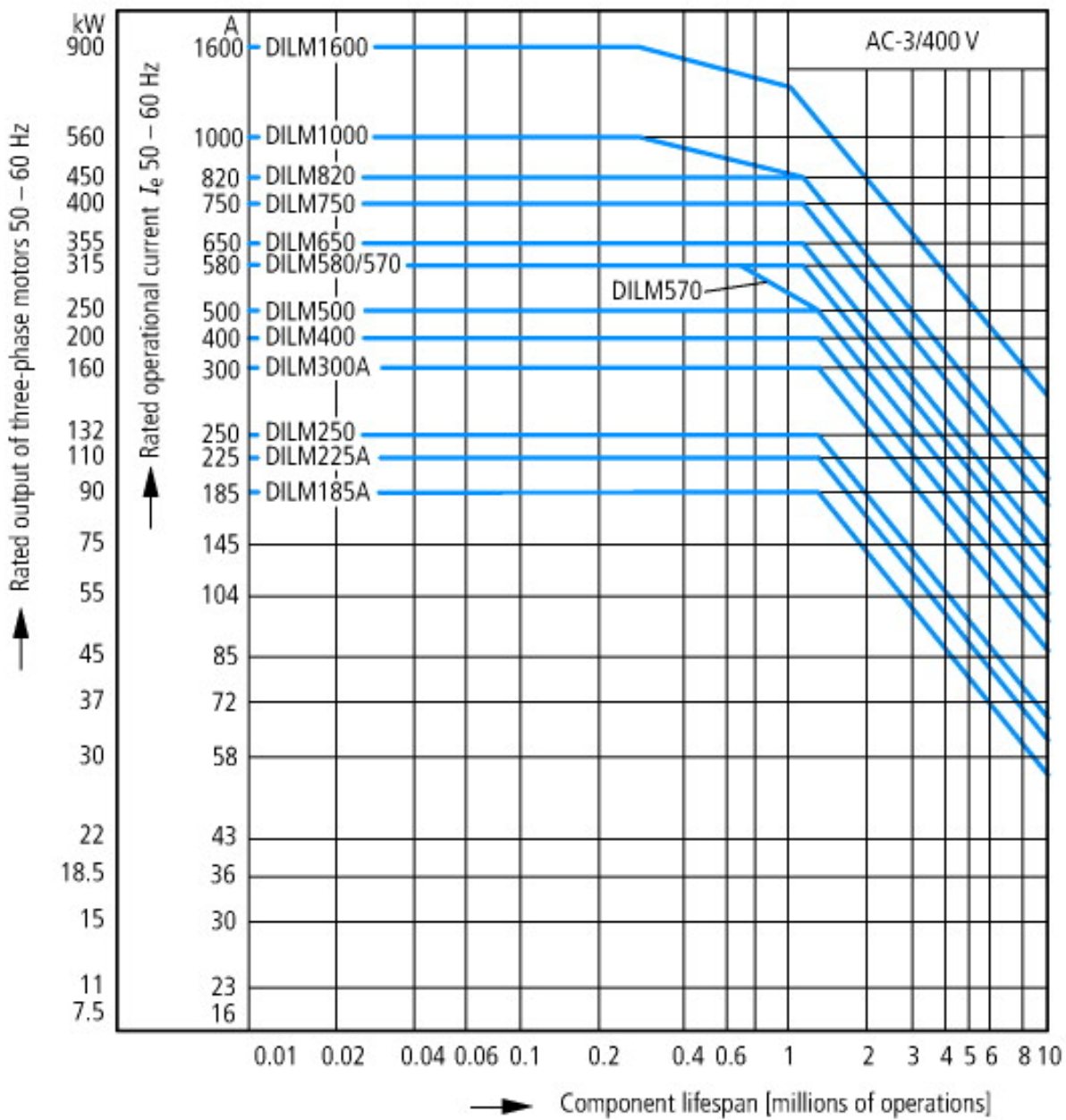
Electromagnetic compatibility			This product is designed for operation in industrial environments (environment 2). The use in residential environments (environment 1) could cause electrical interference so that addition suppression must be planned.
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Technical data according to ETIM 4.0

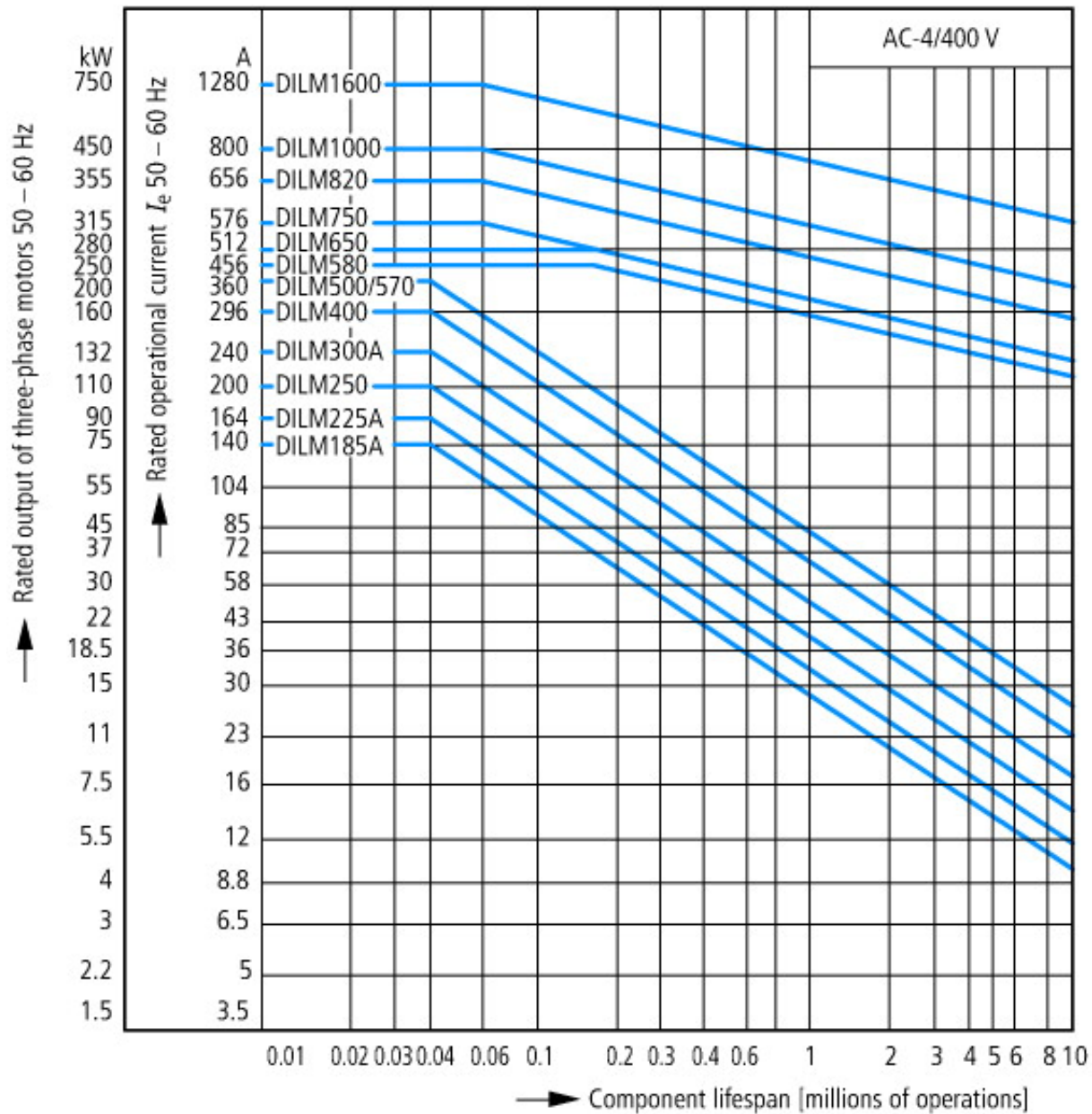
Number of main contacts as N/Os			3
Rated operation current I _e at AC-1, 400 V			386
Connection type main circuit			Screw connection
Rated control voltage U _s at AC 60HZ	V		240
Number of auxiliary contacts as N/Os			2
Rated control voltage U _s at AC 50HZ	V		240
Number of auxiliary contacts as N/Cs			2
Suitable for rail-mounting			No
Rated control voltage U _s at DC	V		0
Voltage type for actuation			AC
Rated operation current I _e at AC-3, 400 V	A		225
Number of N/Cs as main contact			0
Motor rating at AC-3, 400 V	kWh		110

Characteristics

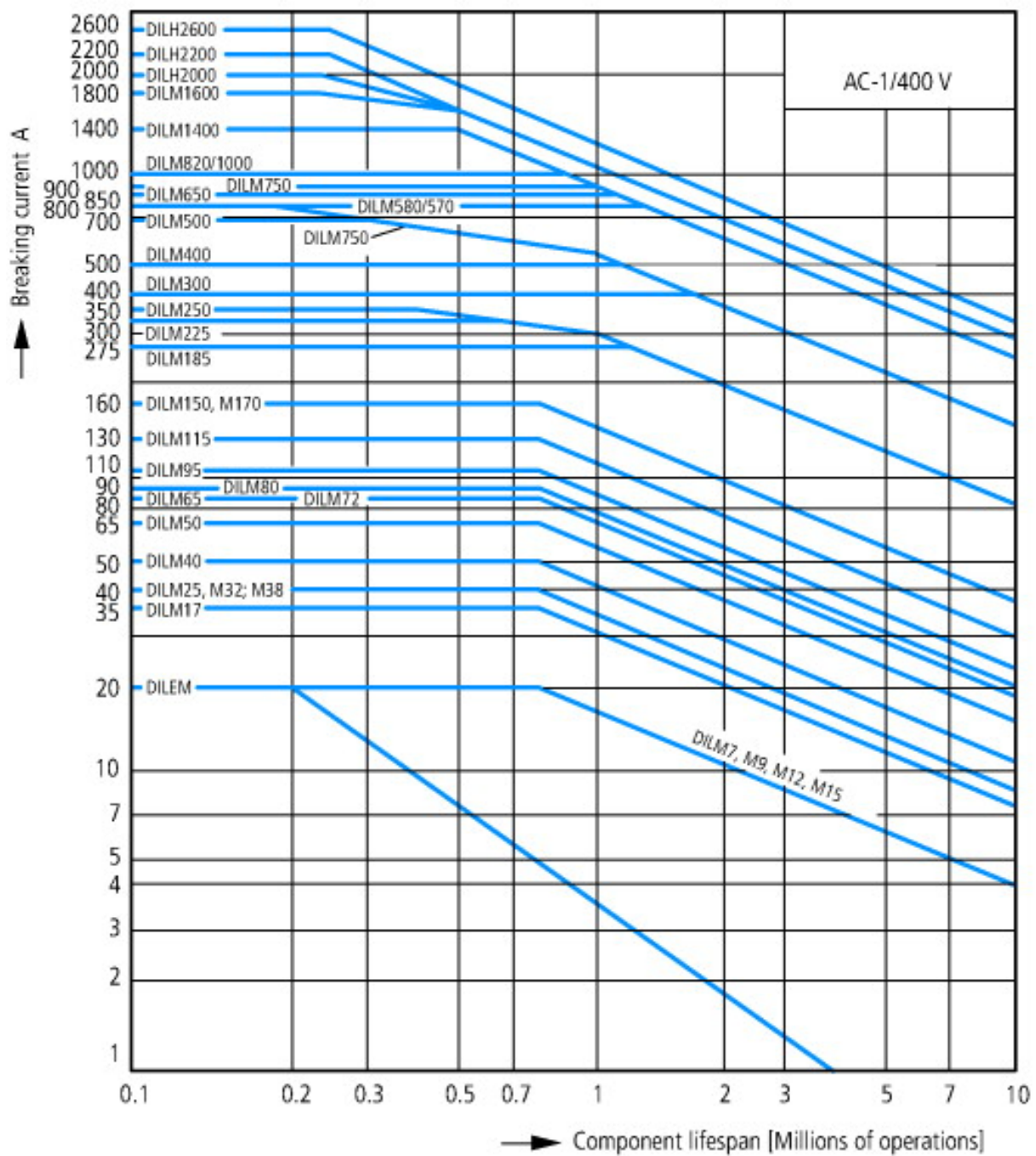
→ operating frequency



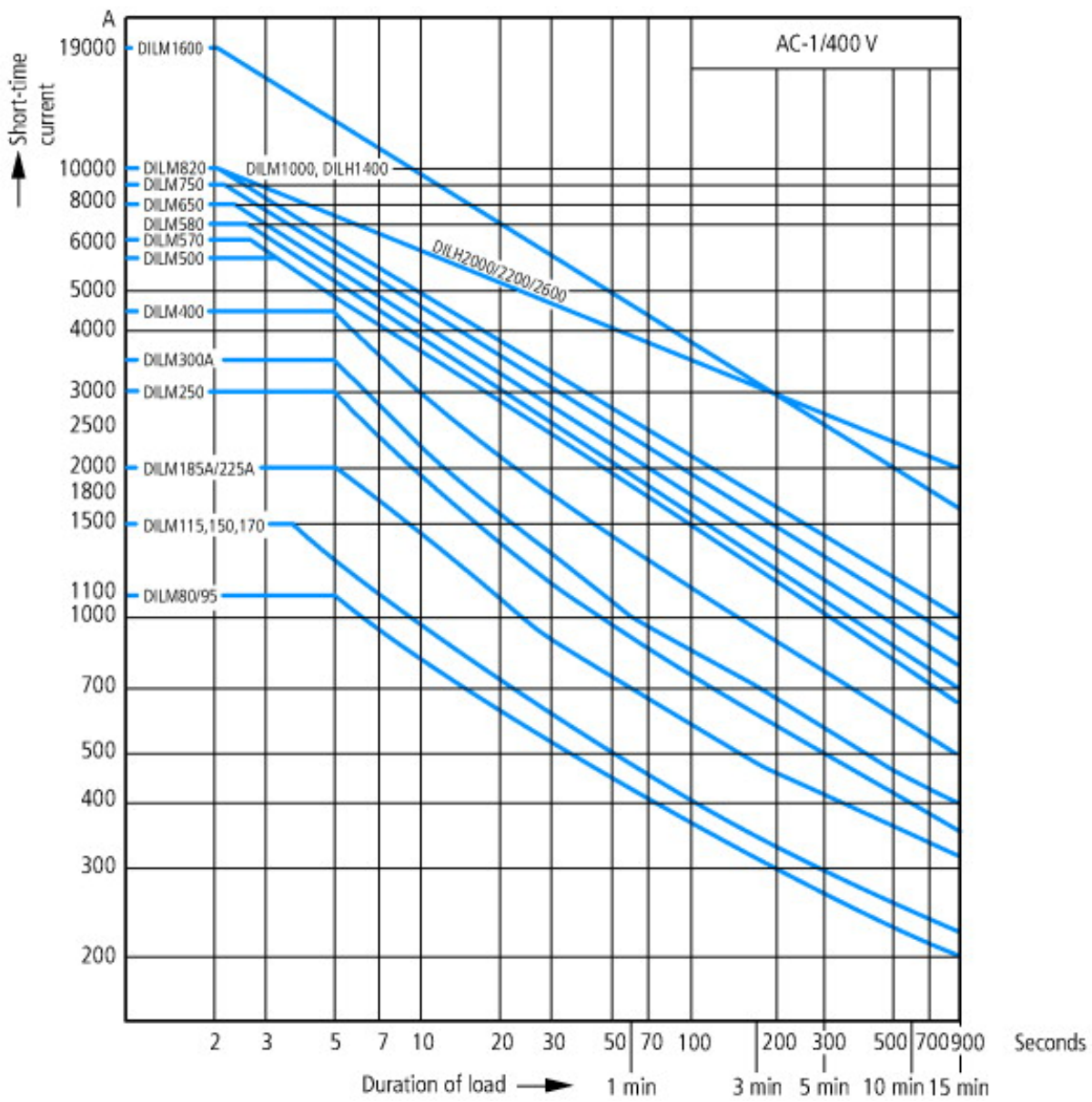
- Squirrel-cage motor
- Operating characteristics
- Starting: from rest
- Stopping: after attaining full running speed
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 1 x rated motor current
- Utilization category
- 100 % AC-3
- Typical applications
- Compressors
- Lifts
- 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 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

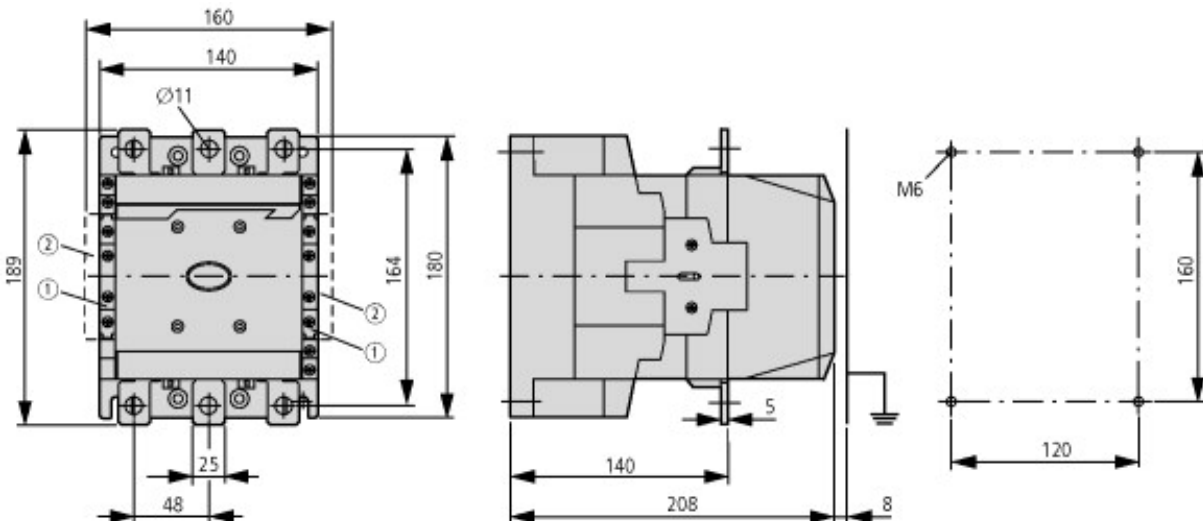
Normal switching duty

CAD-Data

Product standards CAD data:

<http://eaton-moeller.partcommunity.com>

Dimensions



i DILM820-XHI...-SI

**Additional product information (links)**

IL03406002Z (IL03406002Z) Contactors	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03406002Z2010_07.pdf
IL03406005Z (IL03406005Z) Contactors	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03406005Z2010_07.pdf
Installation Instructions	http://www.moeller.net/en/support/instructions_awa.jsp
Documentation	http://www.moeller.net/en/support/index.jsp
Motor starters and "Special Purpose Ratings" for the North American market	http://www.moeller.net/binary/ver_techpapers/ver953en.pdf
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf
The Interaction of Contactors with PLCs	http://www.moeller.net/binary/ver_techpapers/ver957en.pdf
Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	http://www.moeller.net/binary/ver_techpapers/ver956en.pdf
Switchgear for Luminaires	http://www.moeller.net/binary/ver_techpapers/ver955en.pdf
Effect of the Cable Capacitance of Long Control Cables on the Actuation of Contactors	http://www.moeller.net/binary/ver_techpapers/ver949en.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
X-Start - New Generation:100 years of Moeller contactors - Continuous Progress-	http://www.moeller.net/binary/ver_techpapers/ver937en.pdf
Switchgear of Power Factor Correction Systems	http://www.moeller.net/binary/ver_techpapers/ver934en.pdf