



Contactor, 18,5kW/400V, DC-operated



Powering Business Worldwide™

Part no. DILM40(RDC24)

Article no. 277780

Program

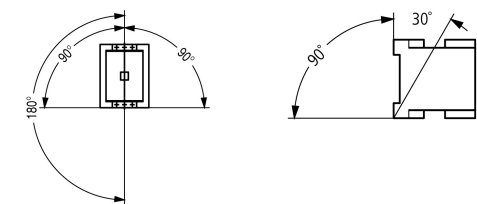
Product range			Contactors
Application			Contactors for Motors
Subrange			Contactors up to 170 A, 3 pole
Connection technique			Screw terminals
Pole			3 pole
Rated operational current			
AC-3			
380 V 400 V	I_e	A	40
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th}=I_e$	A	60
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	P	kW	12.5
380 V 400 V	P	kW	18.5
660 V 690 V	P	kW	23
AC-4			
220 V 230 V	P	kW	5
380 V 400 V	P	kW	9
660 V 690 V	P	kW	12
Contact sequence			
Instructions			Contacts to EN 50012. integrated suppressor circuit in actuating electronics
Can be combined with auxiliary contact			DILM150-XHI(V).. DILM1000-XHI(V)..
Voltage AC/DC			DC operation

Approbativen

UL approval	Yes
CSA approval	Yes
Product Standards	IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.	E29096
UL CCN	NLDX
CSA File No.	012528
CSA Class No.	2411-03, 3211-04
NA Certification	UL listed, CSA certified
Specially designed for NA	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		5000

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		°C	
Open		°C	- 25 - 60
Enclosed		°C	- 25 - 40
Storage		°C	- 40 - 80
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	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	10
Auxiliary contacts			
N/O contact		g	7
N/C contact		g	5
Protection type			IP00
Protection against direct contact when actuated from front (EN 90274)			Finger- and back-of-hand proof
Weight			
AC operated		kg	0.9
DC operated		kg	1.1
Terminal capacity main cable			
Solid		mm ²	1 x (0.75 - 16) 2 x (0.75 - 16)
Flexible with ferrule		mm ²	1 x (0.75 - 35) 2 x (0.75 - 25)
Stranded		mm ²	1 x (16 - 50) 2 x (16 - 35)
Solid or stranded		AWG	12 - 2
Flat conductor	Number of segments x width x thickness	mm	2 x (6 x 9 x 0.8)
Main cable connection screw/bolt			M6
Tightening torque		Nm	3.3
Terminal capacity control circuit cables			
Solid		mm ²	1 x (0.75 - 4) 2 x (0.75 - 4)
Flexible with ferrule		mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Solid or stranded		AWG	18 - 14
Control circuit cable connection screw/bolt			M3.5
Tightening torque		Nm	1.2
Tool			
Main cable			
Pozidriv screwdriver		Size	2

Standard screwdriver		mm	0.8 x 5.5 1 x 6
Control circuit cables			
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		mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible with ferrule		mm ²	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG	18 - 14
Tool			
Stripping length		mm	10
Screwdriver blade width		mm	3.5

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 VDE 0106 Part 101 and Part 101/A1			
between coil and contacts		V AC	440
between the contacts		V AC	440
Making capacity (p.f. to IEC/EN 60947)			
	Up to 690 V	A	560
Breaking capacity			
220/230 V		A	400
380/400 V		A	400
500 V		A	400
660/690 V		A	250
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	50
Type "1" coordination			
400 V	gG/gL 500 V	A	125
690 V	gG/gL 690 V	A	80

AC

AC-1 duty			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	I _{th} = I _e	A	60
at 50 °C	I _{th} = I _e	A	57
at 55 °C	I _{th} = I _e	A	55
at 60 °C	I _{th} = I _e	A	50
enclosed	I _{th}	A	45
Conventional free air thermal current, 1 pole			
open	I _{th}	A	125

enclosed	I_{th}	A	112
AC-3 duty			
Rated operational current AC-3 open, 50 - 60 Hz, 3 pole	I_e		
220/230 V	I_e	A	40
240 V	I_e	A	40
380/400 V	I_e	A	40
415 V	I_e	A	40
440V	I_e	A	40
500 V	I_e	A	40
660/690 V	I_e	A	25
Motor rating	P	kWh	
220/230 V	P	kW	12.5
240V	P	kW	13.5
380/400 V	P	kW	18.5
415 V	P	kW	24
440 V	P	kW	25
500 V	P	kW	28
660/690 V	P	kW	23
AC-4 duty			
Rated operational current AC-4 open, 50 - 60 Hz, 3 pole	I_e		
220/230 V	I_e	A	18
240 V	I_e	A	18
380/400 V	I_e	A	18
415 V	I_e	A	18
440 V	I_e	A	18
500 V	I_e	A	18
660/690 V	I_e	A	14
Motor rating	P	kWh	
220/230 V	P	kW	5
240 V	P	kW	5.5
380/400 V	P	kW	9
415 V	P	kW	9.5
440 V	P	kW	10
500 V	P	kW	11
660/690 V	P	kW	12

DC

Rated operational current, open			
DC-1 operation			
60 V	I_e	A	50
110 V	I_e	A	50
220 V	I_e	A	45
440 V	I_e	A	2.9
DC-3 operation			
60 V	I_e	A	50
110 V	I_e	A	50
220 V	I_e	A	25
440 V	I_e	A	0.6
DC-5 operation			
60 V	I_e	A	50
110 V	I_e	A	50
220 V	I_e	A	25
440 V	I_e	A	0.6

Current heat loss (3 pole)

Current heat loss at I_{th}	W	11.3
Current heat loss at I_e to AC-3/400 V	W	7.2
Impedance per pole	m Ω	1.5

Magnet systems

Voltage tolerance		$\times U_c$	
AC operated	Pick-up	$\times U_c$	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	$\times U_c$	0.3 - 0.6
Notes			RDC 24 (U_{min} 24 V DC/ U_{max} 27 V DC) Example: $U_c = 0.7 \times U_{min} - 1.2 \times U_{max} / U_c = 0.7 \times 24 V - 1.2 \times 27 V DC$
DC operated	Pick-up	$\times U_c$	0.7 - 1.2
Notes			at least smoothed two-phase bridge rectifier or three-phase rectifier
DC operated	Drop-out	$\times U_c$	0.15 - 0.6
Power consumption of the coil in a cold state and $1.0 \times U_c$			
50 Hz	Pick-up	VA	149
50 Hz	Sealing	VA	16
50 Hz	Sealing	W	4.3
60 Hz	Pick-up	VA	178
60 Hz	Sealing	VA	19
60 Hz	Sealing	W	5.3
50/60 Hz	Pick-up	VA	168 154
50/60 Hz	Sealing	VA	22 14
50/60 Hz	Sealing	W	5.3 4.3
DC operated	Pick-up	W	24
DC operated	Sealing	W	0.5
Duty factor		% DF	100
Switching times at 100 % U_c (approximate values)			
Main contacts			
AC operated			
Closing delay		ms	12 - 18
Opening delay		ms	8 - 13
DC operated		ms	
Closing delay		ms	54
Opening delay		ms	24
Arcing time		ms	10
Lifespan, mechanical; Coil 50/60 Hz	at 50 Hz		Mechanical lifespan at 50 Hz approx. 30% lower than under "Technical data, general"

Electromagnetic compatibility (EMC)

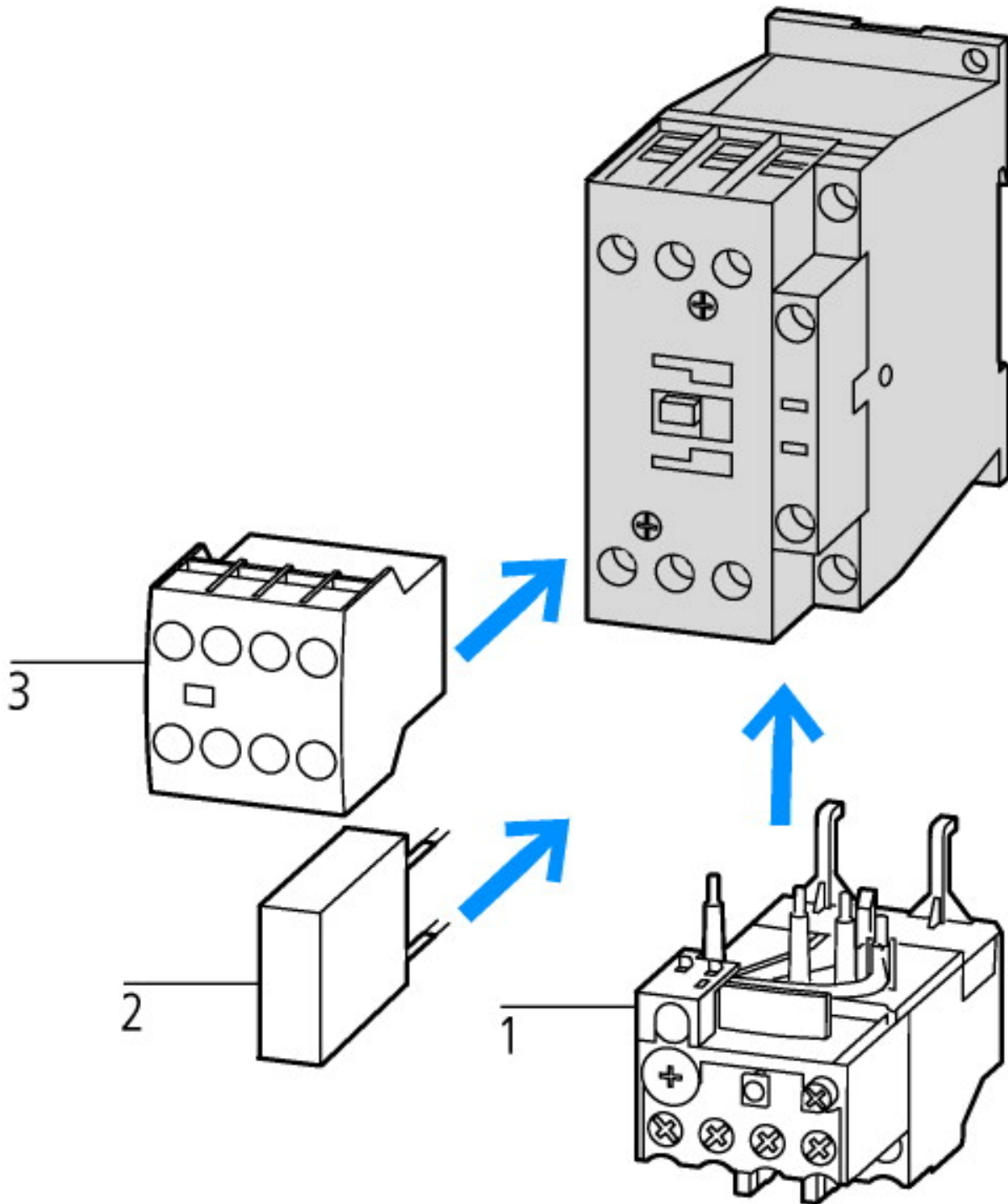
Emitted interference			to EN 60947-1
Interference immunity			to EN 60947-1

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			60
Connection type main circuit			Screw connection
Rated control voltage U_s at AC 60HZ		V	0
Number of auxiliary contacts as N/Os			0
Rated control voltage U_s at AC 50HZ		V	0
Number of auxiliary contacts as N/Cs			0
Suitable for rail-mounting			No
Rated control voltage U_s at DC		V	27
Voltage type for actuation			DC
Rated operation current I_e at AC-3, 400 V		A	40

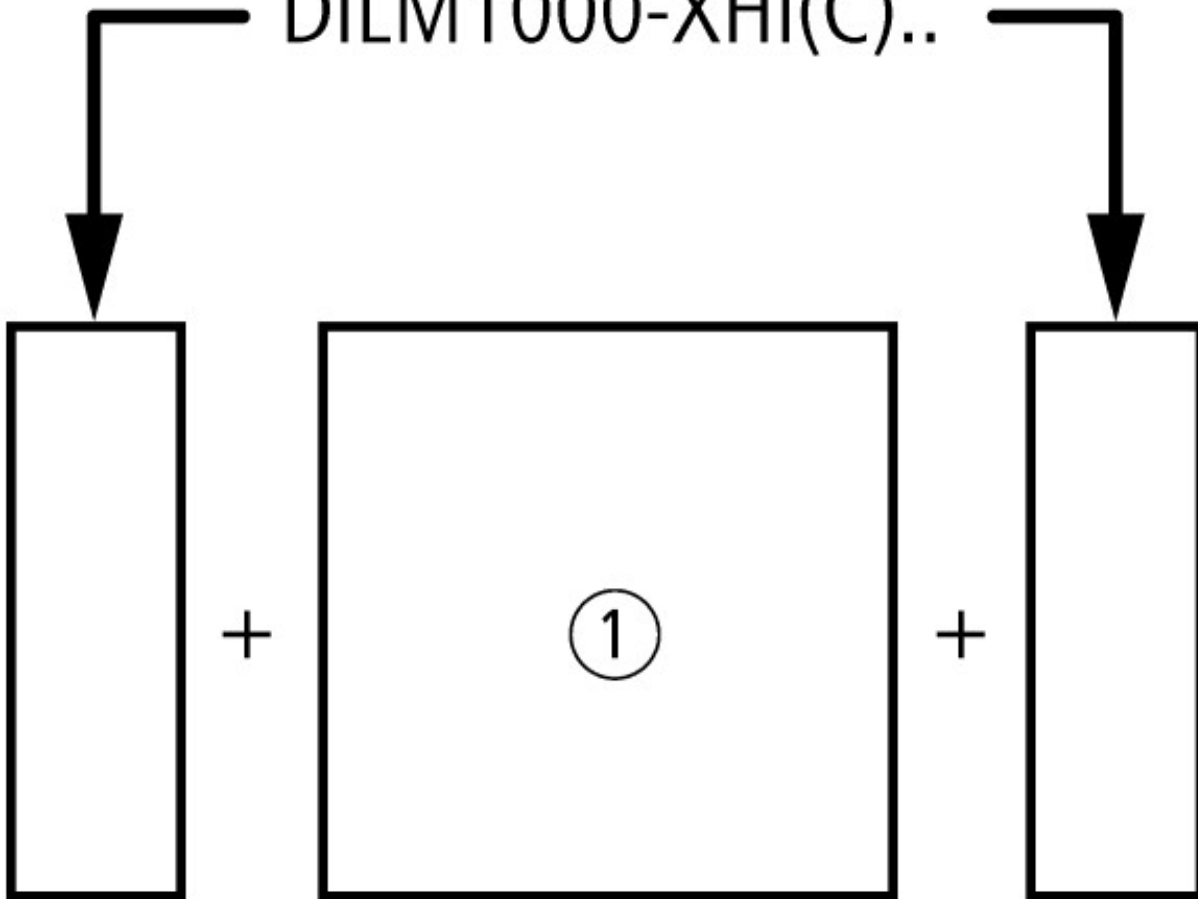
Number of N/Cs as main contact		0
Motor rating at AC-3, 400 V	kWh	18.5

Characteristics

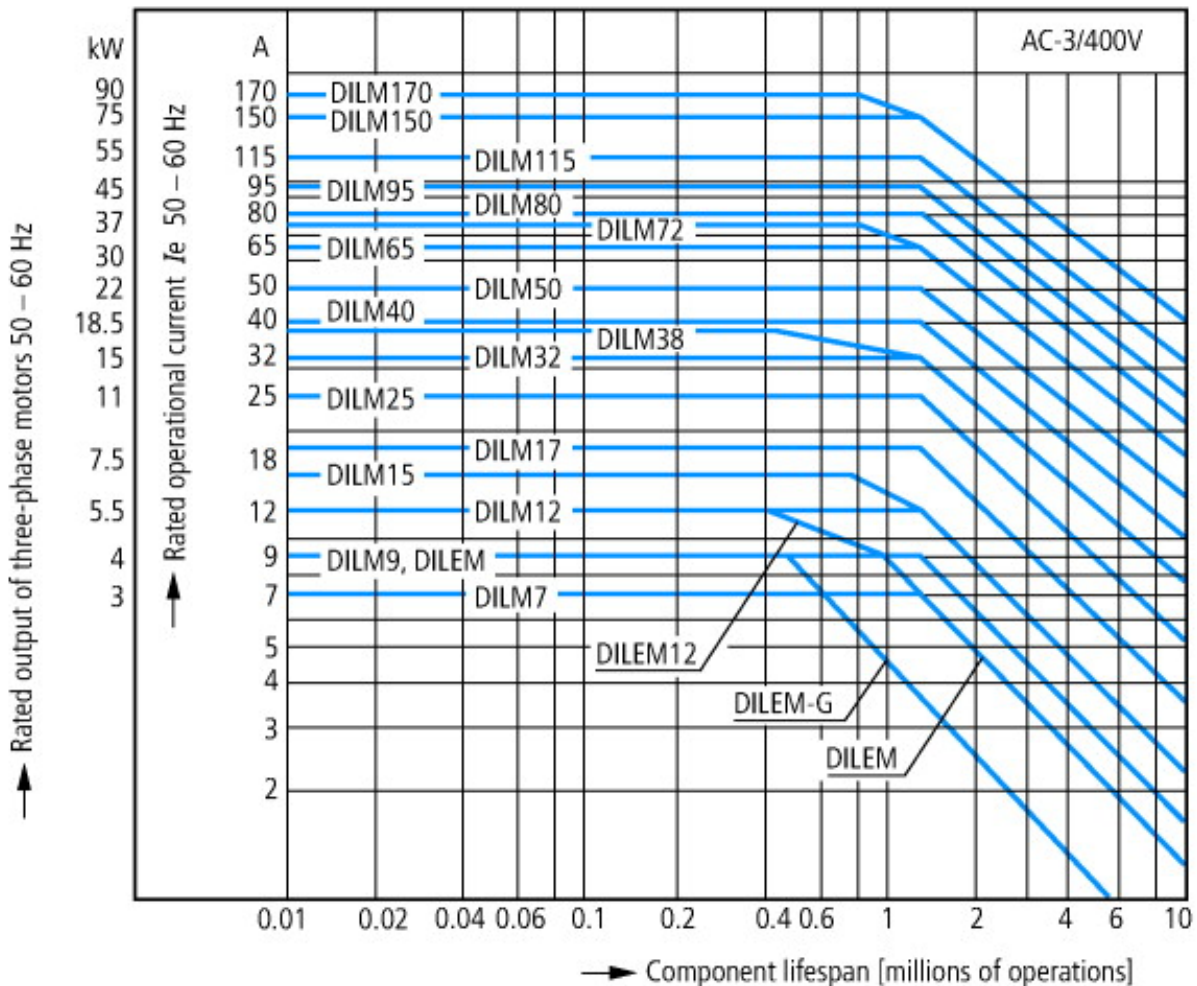


- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules

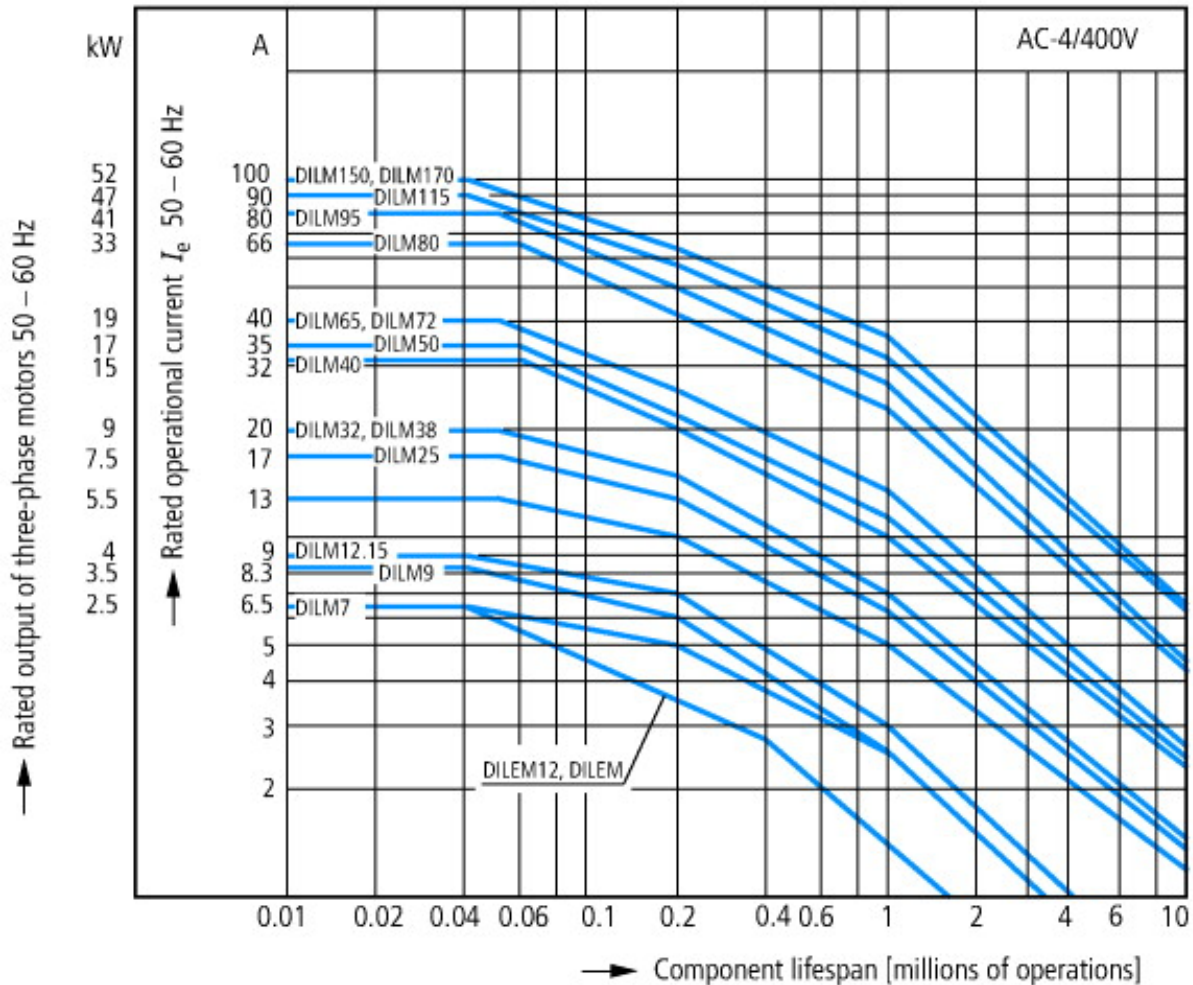
DILM1000-XHI(C)..



on the side: 2 x DILM1000-XHI(V)11-SI; surface mounting: 1 x DILM150-XHIA11
 on the side: 2 x DILM1000-XHI(V)11-SA; surface mounting: 1 x DILM150-XHI (2 pole)
 on the side: 1 x DILM1000-XHI(V)11-SI; surface mounting: 1 x DILM150-XHIA22
 on the side: 1 x DILM1000-XHI(V)11-SA; surface mounting: 1 x DILM150-XHI (4 pole)



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



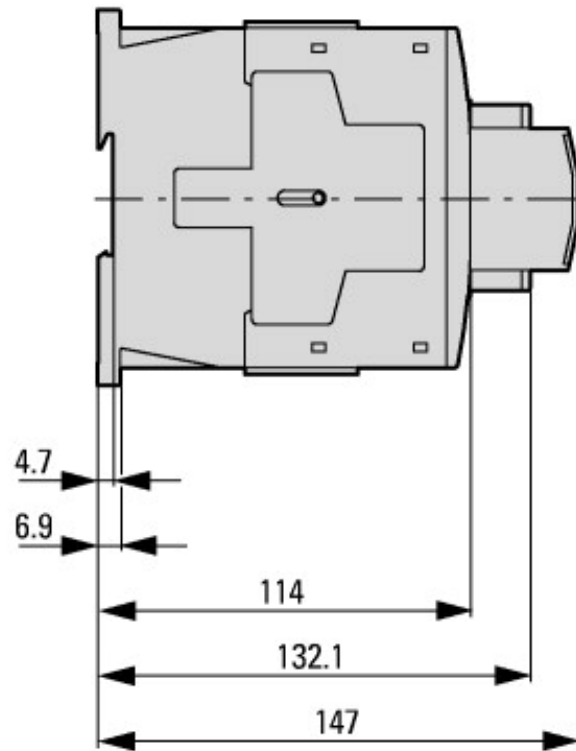
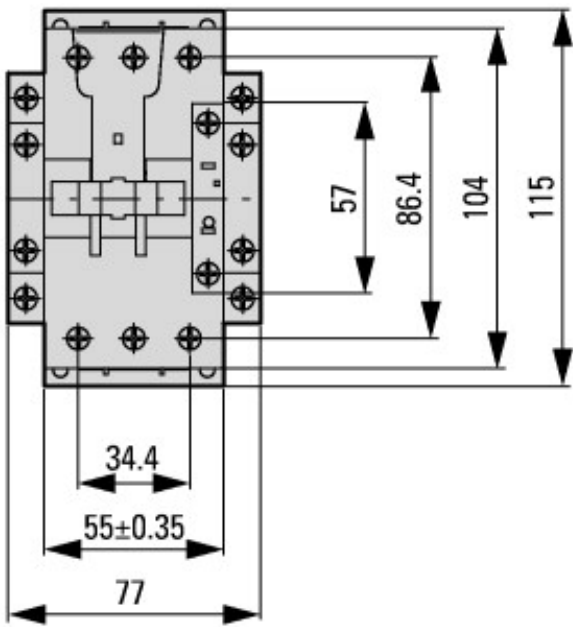
Extreme switching duty
 Squirrel-cage motor
 Operating characteristics
 Inching, plugging, reversing
 Electrical characteristics
 Make: up to 6 x rated motor current
 Break: up to 6 x rated motor current
 Utilization category
 100 % AC-4
 Typical applications
 Printing presses
 Wire-drawing machines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

CAD-Data

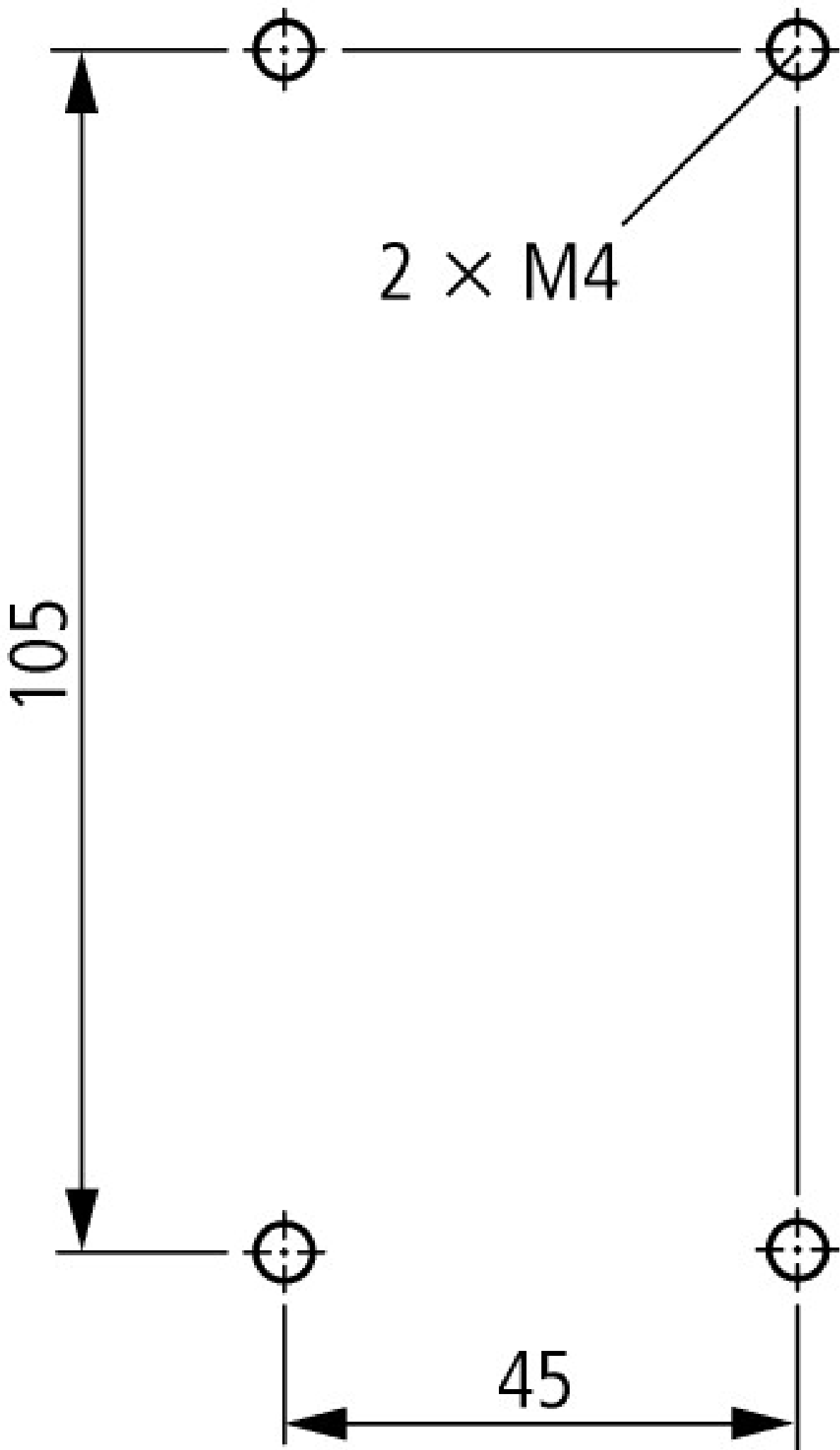
Product standards CAD data:

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

Dimensions



Contacteur with auxiliary contact module



Lateral clearance to earthed parts: 6 mm

Additional product information (links)

IL03407033Z (AWA2100-2247) Contactor DILM, basic unit	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407033Z2010_10.pdf
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