



**Contactor, 3p, 37kW/400V/AC3**

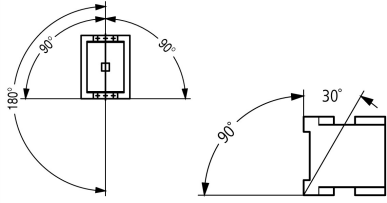
**Part no.** DILM80(42V50/60HZ)  
**Article no.** 239407  
**Catalog No.** XTCE080F00AB

## Delivery program

Product range			Contactors
Application			Contactors for Motors
Subrange			Contactors up to 170 A, 3 pole
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
Notes			Also suitable for motors with efficiency class IE3. IE3-ready devices are identified by the logo on their packaging.
Connection technique			Screw terminals
Number of poles			3 pole
<b>Rated operational current</b>			
AC-3			
380 V 400 V	$I_e$	A	80
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	110
enclosed	$I_{th}$	A	80
Conventional free air thermal current, 1 pole			
open	$I_{th}$	A	225
enclosed	$I_{th}$	A	200
<b>Max. rating for three-phase motors, 50 - 60 Hz</b>			
AC-3			
220 V 230 V	P	kW	25
380 V 400 V	P	kW	37
660 V 690 V	P	kW	63
AC-4			
220 V 230 V	P	kW	11.5
380 V 400 V	P	kW	19
660 V 690 V	P	kW	26
Contact sequence			
<b>Instructions</b>			Contacts to EN 50012.
Can be combined with auxiliary contact			DILM150-XHI(V).. DILM1000-XHI(V)..
Voltage AC/DC			AC operation

## Technical data

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

DC operated	Operations	x 10 <sup>6</sup>	10
Operating frequency, mechanical			
AC operated	Operations/h		3600
DC operated	Operations/h		3600
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	10
Auxiliary contacts			
N/O contact		g	7
N/C contact		g	5
Degree of Protection			
			IP00
Protection against direct contact when actuated from front (EN 50274)			
			Finger and back-of-hand proof
Weight			
AC operated		kg	2
DC operated		kg	2.1
Terminal capacity main cable			
Flexible with ferrule		mm <sup>2</sup>	1 x (10 - 95) 2 x (10 - 70)
Stranded		mm <sup>2</sup>	1 x (16 - 95) 2 x (16 - 70)
Solid or stranded		AWG	8...3/0
Flat conductor	Lamellenzahl x Breite x Dicke	mm	2 x (6 x 16 x 0.8)
Main cable connection screw/bolt			
			M10
Tightening torque			
			Nm 14
Terminal capacity control circuit cables			
Solid		mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 4)
Flexible with ferrule		mm <sup>2</sup>	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			
Hexagon socket-head spanner	SW	mm	5
Control circuit cables			

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	690
between the contacts		V AC	690
Making capacity (p.f. to IEC/EN 60947)			
	$U_p$ to 690 V	A	1120
Breaking capacity			
220 V 230 V		A	800
380 V 400 V		A	800
500 V		A	800
660 V 690 V		A	650
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	160
690 V	gG/gL 690 V	A	160
Type "1" coordination			
400 V	gG/gL 500 V	A	250
690 V	gG/gL 690 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	110
at 50 °C	$I_{th} = I_e$	A	98
at 55 °C	$I_{th} = I_e$	A	94
at 60 °C	$I_{th} = I_e$	A	90
enclosed	$I_{th}$	A	80
Conventional free air thermal current, 1 pole			
open	$I_{th}$	A	225
enclosed	$I_{th}$	A	200
AC-3			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	$I_e$	A	80
240 V	$I_e$	A	80
380 V 400 V	$I_e$	A	80
415 V	$I_e$	A	80
440V	$I_e$	A	80
500 V	$I_e$	A	80
660 V 690 V	$I_e$	A	65
380 V 400 V	$I_e$	A	80
Motor rating	P	kWh	
220 V 230 V	P	kW	25
240V	P	kW	27.5
380 V 400 V	P	kW	37
415 V	P	kW	48

440 V	P	kW	51
500 V	P	kW	58
660 V 690 V	P	kW	63
<b>AC-4</b>			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I <sub>e</sub>	A	40
240 V	I <sub>e</sub>	A	40
380 V 400 V	I <sub>e</sub>	A	40
415 V	I <sub>e</sub>	A	40
440 V	I <sub>e</sub>	A	40
500 V	I <sub>e</sub>	A	40
660 V 690 V	I <sub>e</sub>	A	27
Motor rating			
220 V 230 V	P	kW	11.5
240 V	P	kW	13
380 V 400 V	P	kW	19
415 V	P	kW	24
440 V	P	kW	25
500 V	P	kW	29
660 V 690 V	P	kW	26

## DC


Rated operational current, open			
<b>DC-1</b>			
60 V	I <sub>e</sub>	A	110
110 V	I <sub>e</sub>	A	110
220 V	I <sub>e</sub>	A	70
440 V	I <sub>e</sub>	A	4.5
<b>DC-3</b>			
60 V	I <sub>e</sub>	A	110
110 V	I <sub>e</sub>	A	110
220 V	I <sub>e</sub>	A	35
440 V	I <sub>e</sub>	A	1
<b>DC-5</b>			
60 V	I <sub>e</sub>	A	110
110 V	I <sub>e</sub>	A	110
220 V	I <sub>e</sub>	A	35
440 V	I <sub>e</sub>	A	1

## Current heat loss

3-pole at I <sub>th</sub>	W	12.3
Current heat loss at I <sub>e</sub> to AC-3/400 V	W	9
Impedance per pole	mΩ	0.6

## Magnet systems

Voltage tolerance			
AC operated	Pick-up	x U <sub>c</sub>	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	x U <sub>c</sub>	0.3 - 0.6
DC operated	Pick-up	x U <sub>c</sub>	0.7 - 1.2
DC operated	Drop-out	x U <sub>c</sub>	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 <sub>c</sub>			
50 Hz	Pick-up	VA	310
50 Hz	Sealing	VA	26
50 Hz	Sealing	W	5.8
60 Hz	Pick-up	VA	345
60 Hz	Sealing	VA	30

60 Hz	Sealing	W	7.1
50/60 Hz	Pick-up	VA	372 328
50/60 Hz	Sealing	VA	37.1 22.6
50/60 Hz	Sealing	W	7.5 6.1
DC operated	Pick-up	W	90
DC operated	Sealing	W	1.3
Duty factor		% DF	100
Changeover time at 100 % U <sub>C</sub> (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	14 - 20
Opening delay		ms	9 - 14
DC operated			
Closing delay		ms	45
Opening delay		ms	34
Arcing time		ms	15
Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal).		mA	 1
Lifespan, mechanical; Coil 50/60 Hz		x 10 <sup>6</sup>	Mechanical lifespan at 50 Hz approx. 30% lower than under "General"

### Electromagnetic compatibility (EMC)

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

### Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I <sub>n</sub>	A	80
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	3
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	9
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	5.8
Heat dissipation capacity	P <sub>diss</sub>	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			
			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	42 - 42
Rated control supply voltage Us at AC 60HZ	V	42 - 42
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	110
Rated operation current Ie at AC-3, 400 V	A	80
Rated operation power at AC-3, 400 V	kW	37
Rated operation current Ie at AC-4, 400 V	A	40
Rated operation power Ie at AC-4, 400 V	kW	20
Modular version		No
Number of auxiliary contacts as normally open contact		0
Number of auxiliary contacts as normally closed contact		0
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

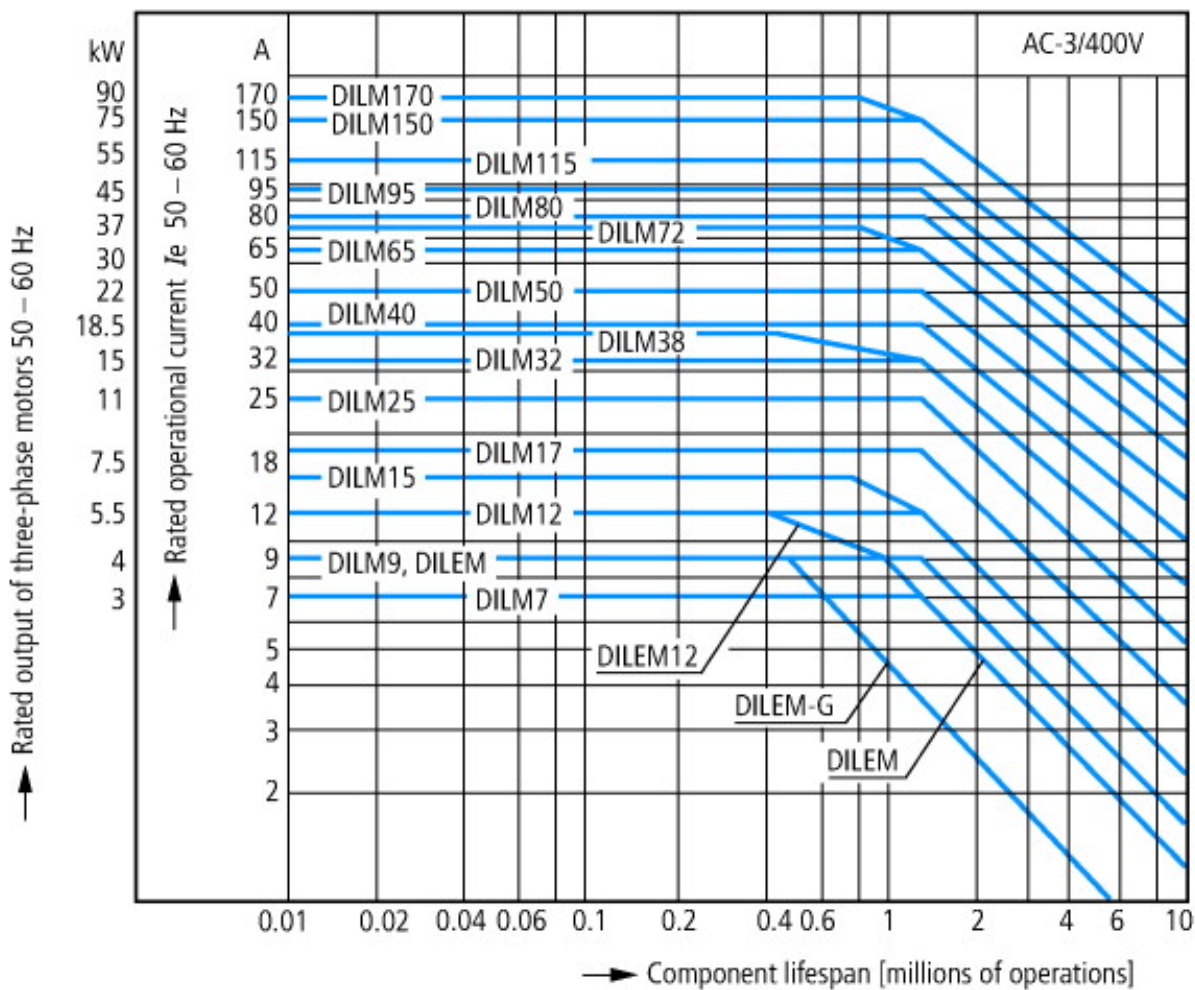
Product Standards		IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.		E29096
UL Category Control No.		NLDX
CSA File No.		012528
CSA Class No.		2411-03, 3211-04
North America Certification		UL listed, CSA certified
Specially designed for North America		No



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



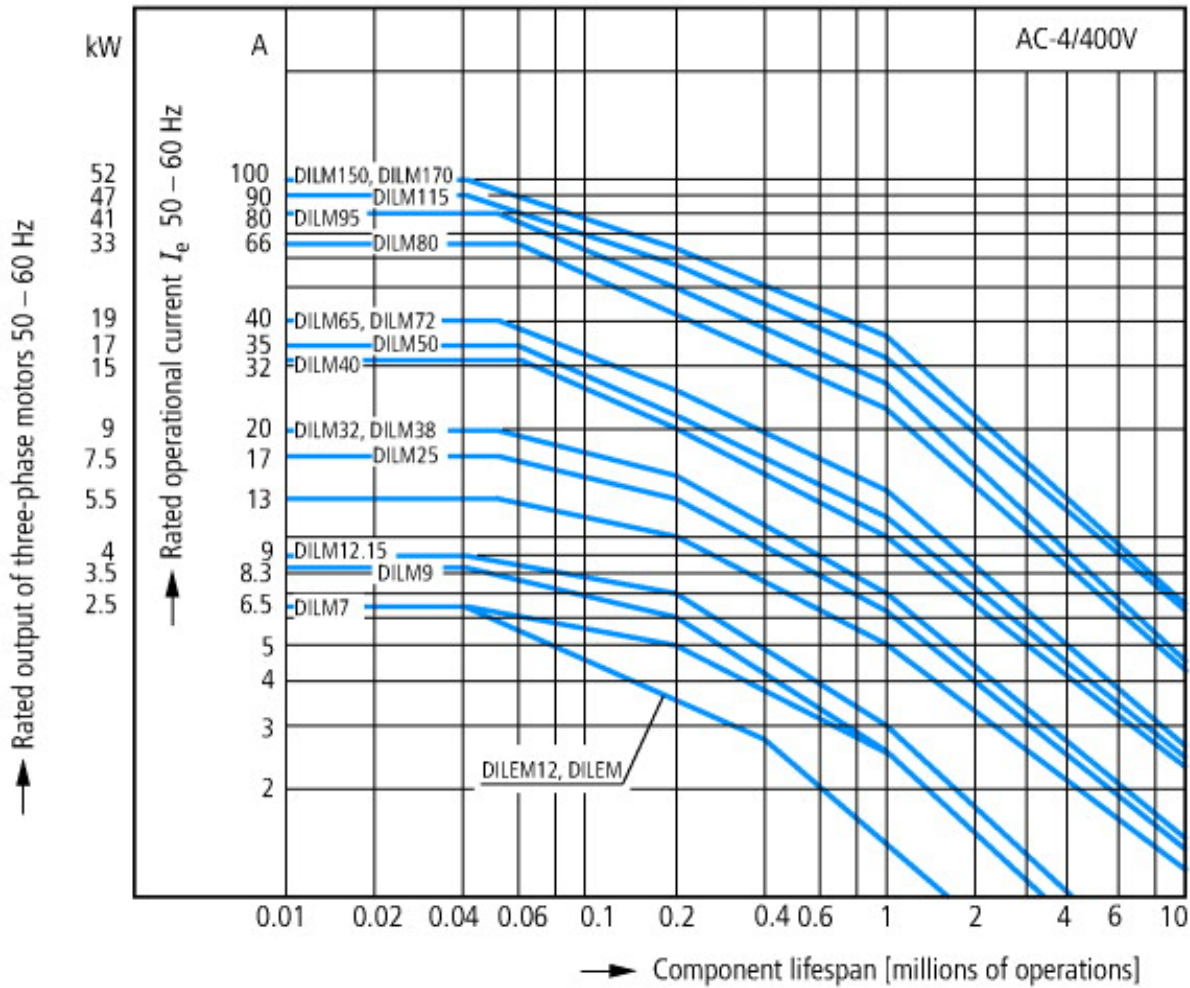
on the side: 2 x DILM820-XHI11(V)-SI; 2 x DILM820-XHI11-SA



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

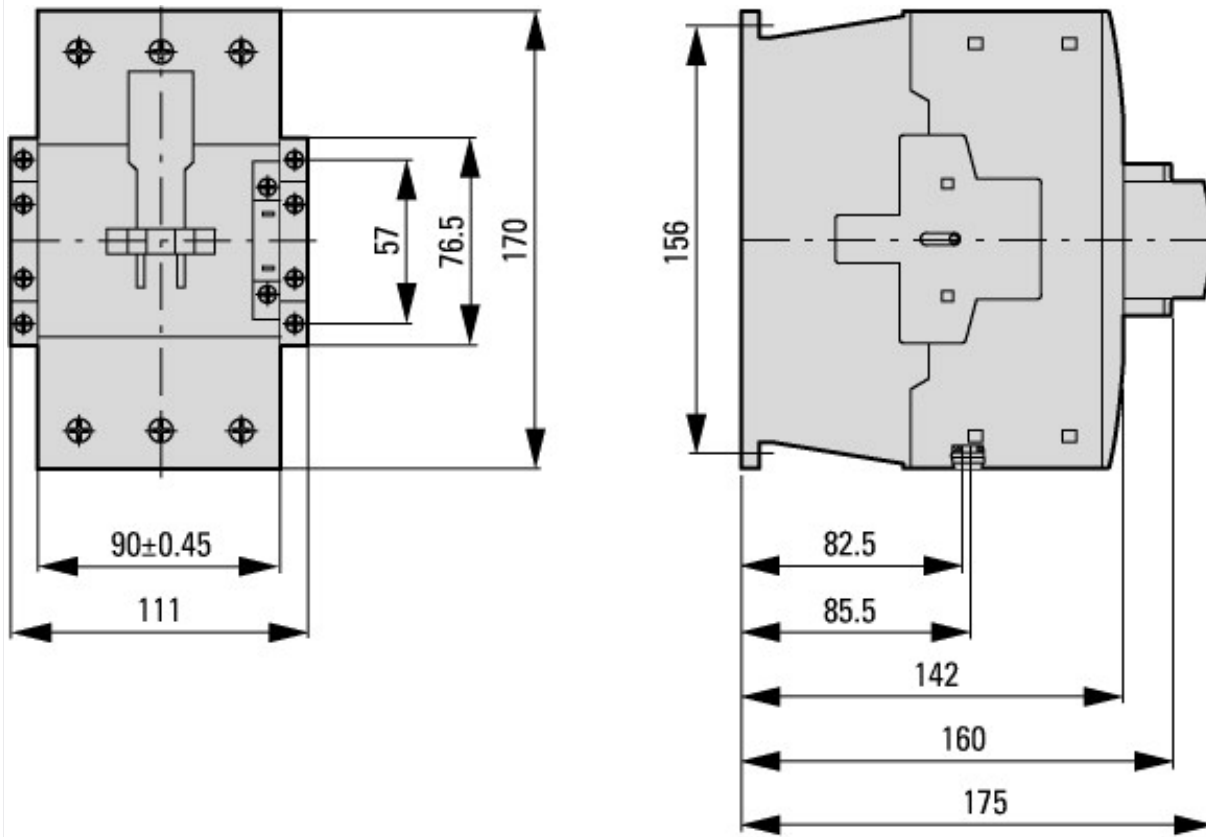


- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing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

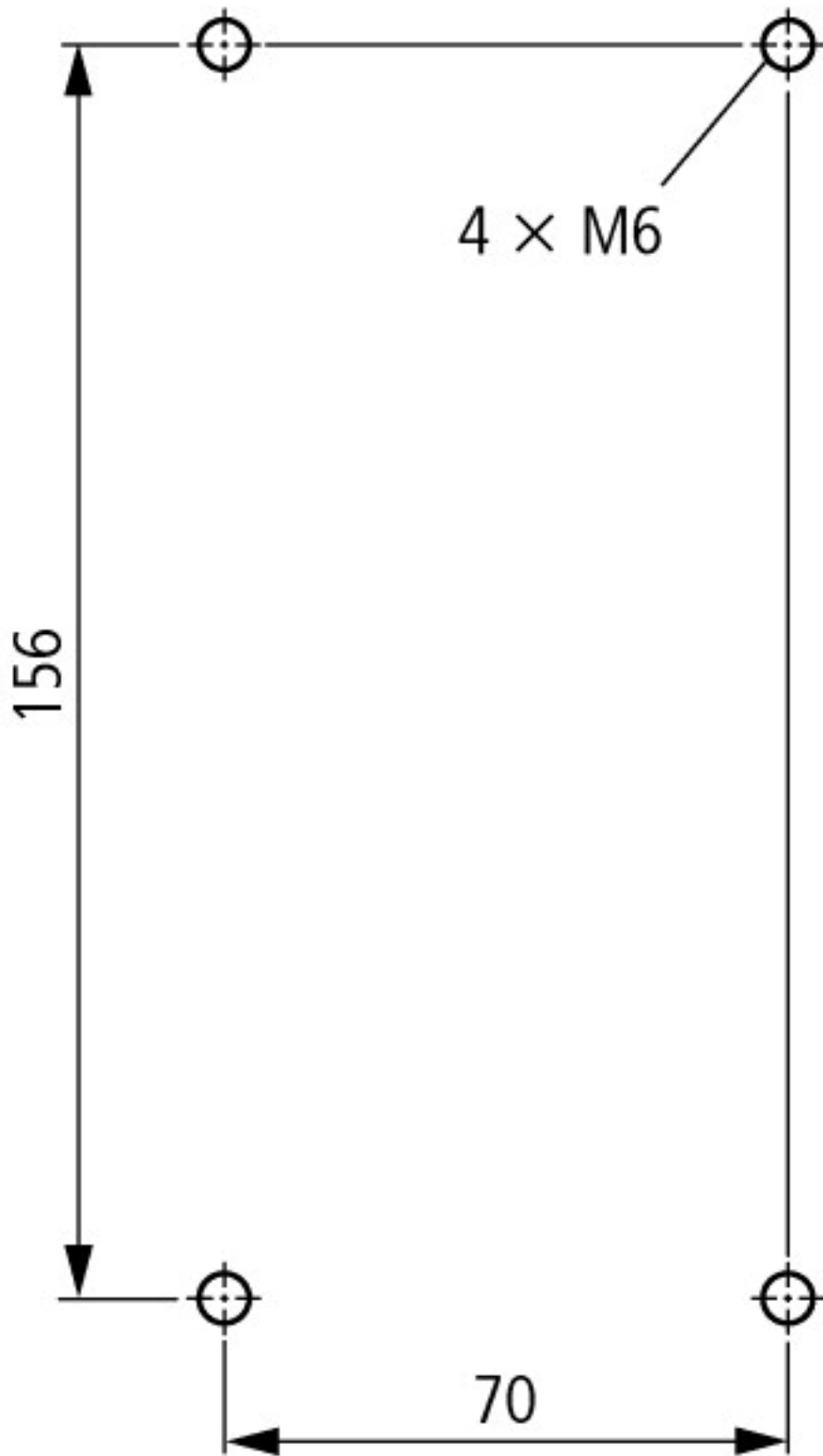


Switching conditions for non-motor consumers, 3 pole, 4 pole  
 Operating characteristics  
 Non inductive and slightly inductive loads  
 Electrical characteristics  
 Switch on: 1 x rated operational current  
 Switch off: 1 x rated operational current  
 Utilization category  
 100 % AC-1  
 Typical examples of application  
 Electric heat

## Dimensions



Contacteur with auxiliary contact module



distance at side to earthed parts: 10 mm

DILM80...DILM170  
 DILMC80...DILMC150  
 DILMF80...DILMF150

## Additional product information (links)

### IL03407039Z (AWA2100-2286) Contactors

IL03407039Z (AWA2100-2286) Contactors	<a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407039Z2010_10.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407039Z2010_10.pdf</a>
UL/CSA: Approved rating data	<a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.84">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.84</a>
UL/CSA: UL/CSA: Special Purpose Rating	<a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.85">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.85</a>
UL/CSA: UL/CSA: Short Circuit Current Rating (SCCR)	<a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.86">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.86</a>
Switchgear of Power Factor Correction Systems	<a href="http://www.moeller.net/binary/ver_techpapers/ver934en.pdf">http://www.moeller.net/binary/ver_techpapers/ver934en.pdf</a>
X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely	<a href="http://www.moeller.net/binary/ver_techpapers/ver938en.pdf">http://www.moeller.net/binary/ver_techpapers/ver938en.pdf</a>

Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions	<a href="http://www.moeller.net/binary/ver_techpapers/ver944en.pdf">http://www.moeller.net/binary/ver_techpapers/ver944en.pdf</a>
Effect of the Cable Capacitance of Long Control Cables on the Actuation of Contactors	<a href="http://www.moeller.net/binary/ver_techpapers/ver949en.pdf">http://www.moeller.net/binary/ver_techpapers/ver949en.pdf</a>
Motor starters and "Special Purpose Ratings" for the North American market	<a href="http://www.moeller.net/binary/ver_techpapers/ver953en.pdf">http://www.moeller.net/binary/ver_techpapers/ver953en.pdf</a>
Switchgear for Luminaires	<a href="http://www.moeller.net/binary/ver_techpapers/ver955en.pdf">http://www.moeller.net/binary/ver_techpapers/ver955en.pdf</a>
Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	<a href="http://www.moeller.net/binary/ver_techpapers/ver956en.pdf">http://www.moeller.net/binary/ver_techpapers/ver956en.pdf</a>
The Interaction of Contactors with PLCs	<a href="http://www.moeller.net/binary/ver_techpapers/ver957en.pdf">http://www.moeller.net/binary/ver_techpapers/ver957en.pdf</a>
Busbar Component Adapters for modern Industrial control panels	<a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a>