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## Eaton 278003

Eaton Moeller® series DILM Contactor, 3 pole, 380 V 400 V 22 kW, 230 V 50/60 Hz, AC operation, Spring-loaded terminals

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<b>PRODUCT NAME</b>	Eaton Moeller® series DILM contactor
<b>CATALOG NUMBER</b>	278003
<b>PRODUCT LENGTH/DEPTH</b>	132.1 mm
<b>PRODUCT HEIGHT</b>	115 mm
<b>PRODUCT WIDTH</b>	55 mm
<b>PRODUCT WEIGHT</b>	0.872 kg
<b>CERTIFICATIONS</b>	CSA File No.: 012528 CSA Class No.: 2411-03, 3211-04 UL UL 508 CSA CSA-C22.2 No. 14-05 IEC/EN 60947 CE VDE 0660 IEC/EN 60947-4-1 UL File No.: E29096 UL Category Control No.: NLDX
<b>CATALOG NOTES</b>	Contacts according to EN 50012

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**ELECTRICAL  
CONNECTION TYPE FOR  
AUXILIARY- AND  
CONTROL-CURRENT  
CIRCUIT**

Spring clamp connection

**NUMBER OF POLES**

Three-pole

**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.

**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 RESIST. OF  
INSUL. MAT. TO  
ABNORMAL HEAT/FIRE  
BY INTERNAL ELECT.  
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.

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**CHARACTERISTIC CURVE**

[eaton-contactors-switch-dilm-characteristic-curve-002.eps](#)

[eaton-contactors-switch-dilm-characteristic-curve.eps](#)

**DECLARATIONS OF  
CONFORMITY**

[eaton-contactor-declaration-of-conformity-uk251225en.pdf](#)

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[IL03407033Z](#)

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[eaton-contactors-contact-dilm-wiring-diagram-003.eps](#)

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[eaton-contactors-dilm-dimensions-002.eps](#)

[eaton-contactors-dilm-3d-drawing-012.eps](#)

<b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
<b>OPERATING FREQUENCY</b>	5000 mechanical Operations/h (AC operated)
<b>POLLUTION DEGREE</b>	3
<b>UTILIZATION CATEGORY</b>	AC-3: Normal AC induction motors: starting, switch off during running AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-4: Normal AC induction motors: starting, plugging, reversing, inching
<b>CLIMATIC PROOFING</b>	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
<b>CONNECTION TO SMARTWIRE-DT</b>	No
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	8000 V AC
<b>CONNECTION</b>	Spring-loaded terminals Screw terminals
<b>FRAME SIZE</b>	FS3
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	60 °C
<b>AMBIENT OPERATING</b>	-25 °C

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**TEMPERATURE - MIN****AMBIENT OPERATING**

**TEMPERATURE (ENCLOSED) - MAX** 40 °C

**AMBIENT OPERATING**

**TEMPERATURE (ENCLOSED) - MIN** -25 °C

**AMBIENT STORAGE**

**TEMPERATURE - MAX** 80 °C

**AMBIENT STORAGE**

**TEMPERATURE - MIN** -40 °C

**ASSIGNED MOTOR**

**POWER AT 115/120 V, 60 HZ, 1-PHASE** 3 HP

**ASSIGNED MOTOR**

**POWER AT 200/208 V, 60 HZ, 3-PHASE** 15 HP

**ASSIGNED MOTOR**

**POWER AT 230/240 V, 60 HZ, 1-PHASE** 10 HP

**ASSIGNED MOTOR**

**POWER AT 230/240 V, 60 HZ, 3-PHASE** 20 HP

**ASSIGNED MOTOR**

**POWER AT 460/480 V, 60 HZ, 3-PHASE** 40 HP

**ASSIGNED MOTOR**

**POWER AT 575/600 V, 60 HZ, 3-PHASE** 50 HP

**CONVENTIONAL**

**THERMAL CURRENT ITH (1-POLE, ENCLOSED)** 145 A

**CONVENTIONAL**

**THERMAL CURRENT ITH (3-POLE, ENCLOSED)** 58 A

**CONVENTIONAL**

**THERMAL CURRENT ITH AT 55°C (3-POLE, OPEN)** 68 A

**CONVENTIONAL**

**THERMAL CURRENT ITH OF MAIN CONTACTS (1-POLE, OPEN)** 162 A

**EQUIPMENT HEAT**

**DISSIPATION, CURRENT-DEPENDENT PVID** 9.9 W

**HEAT DISSIPATION**

**CAPACITY PDISS** 0 W

**HEAT DISSIPATION PER**

**POLE, CURRENT-DEPENDENT PVID** 3.3 W

**APPLICATION**

Contactors for Motors

**PRODUCT CATEGORY**

Contactors

<b>PROTECTION</b>	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
<b>TERMINALS</b>	Spring-cage terminals on auxiliary and control circuit terminals
<b>ARCING TIME</b>	10 ms
<b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>	Screw connection
<b>SCREWDRIVER SIZE</b>	3.5 mm, Spring-loaded terminals, Control circuit cables 0.8 x 5.5/1 x 6 mm, Terminal screw, Main cables, Standard screwdriver 2, Terminal screw, Main cables, Pozidriv screwdriver
<b>VOLTAGE TYPE</b>	AC
<b>DEGREE OF PROTECTION</b>	IP00
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	0
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	0
<b>NUMBER OF CONTACTS (NORMALLY CLOSED) AS MAIN CONTACT</b>	0
<b>NUMBER OF MAIN CONTACTS (NORMALLY OPEN CONTACT)</b>	3
<b>RATED BREAKING CAPACITY AT 220/230 V</b>	500 A
<b>RATED BREAKING CAPACITY AT 380/400 V</b>	500 A
<b>RATED BREAKING CAPACITY AT 500 V</b>	500 A
<b>RATED BREAKING CAPACITY AT 660/690 V</b>	320 A
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX</b>	230 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN</b>	230 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX</b>	230 V

**RATED CONTROL SUPPLY****VOLTAGE (US) AT AC, 60** 230 V**Hz - Min**

<b>DROP-OUT VOLTAGE</b>	AC operated: 0.6 - 0.3 x Uc, AC operated
<b>OVERVOLTAGE CATEGORY</b>	III
<b>DUTY FACTOR</b>	100 %
<b>EMITTED INTERFERENCE</b>	According to EN 60947-1
<b>INTERFERENCE IMMUNITY</b>	According to EN 60947-1
<b>LIFESPAN, MECHANICAL</b>	10,000,000 Operations (AC operated) 7,000,000 Operations (Coil 50/60 Hz)
<b>PICK-UP VOLTAGE</b>	0.8 - 1.1 V AC x Uc
<b>POWER CONSUMPTION, PICK-UP, 50 Hz</b>	154 VA, Dual-frequency coil in a cold state and 1.0 x Us 168 VA, Dual-frequency coil in a cold state and 1.0 x Us
<b>SAFE ISOLATION</b>	440 V AC, Between the contacts, According to EN 61140 440 V AC, Between coil and contacts, According to EN 61140
<b>POWER CONSUMPTION, PICK-UP, 60 Hz</b>	168 VA, Dual-frequency coil in a cold state and 1.0 x Us 154 VA, Dual-frequency coil in a cold state and 1.0 x Us
<b>SCREW SIZE</b>	M6, Terminal screw, Main cables
<b>POWER CONSUMPTION, SEALING, 50 Hz</b>	4.1 W, Dual-frequency coil in a cold state and 1.0 x Us
<b>POWER CONSUMPTION, SEALING, 60 Hz</b>	4.1 W, Dual-frequency coil in a cold state and 1.0 x Us 22 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz 14 VA, Dual-frequency coil in a cold state and 1.0 x Us, at 60 Hz
<b>TERMINAL CAPACITY (STRANDED)</b>	1 x (16 - 50) mm <sup>2</sup> , Main cables 2 x (16 - 35) mm <sup>2</sup> , Main cables
<b>TERMINAL CAPACITY (COPPER BAND)</b>	2 x (6 x 9 x 0.8) mm (Number of segments x width x thickness), Main

	cables
<b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>	<p>2 x (0.75 - 25) mm<sup>2</sup>, Main cables</p> <p>1 x (0.75 - 1.5) mm<sup>2</sup>, Control circuit cables, Spring-loaded terminals</p> <p>1 x (0.75 - 35) mm<sup>2</sup>, Main cables</p> <p>2 x (0.75 - 1.5) mm<sup>2</sup>, Control circuit cables, Spring-loaded terminals</p>
<b>SHOCK RESISTANCE</b>	<p>10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms</p> <p>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms</p> <p>10 g, N/O main contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms</p> <p>5 g, N/C auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms</p> <p>7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27 when tabletop-mounted, Half-sinusoidal shock 10 ms</p> <p>7 g, N/O auxiliary contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms</p>
<b>TERMINAL CAPACITY (SOLID)</b>	<p>1 x (0.75 - 16) mm<sup>2</sup>, Main cables</p> <p>2 x (0.75 - 16) mm<sup>2</sup>, Main cables</p> <p>1 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables, Spring-loaded terminals</p> <p>2 x (0.75 - 2.5) mm<sup>2</sup>, Control circuit cables, Spring-loaded terminals</p>
<b>TERMINAL CAPACITY (SOLID/STRANDED AWG)</b>	<p>18 - 14, Control circuit cables, Spring-loaded terminals</p> <p>Single 14 - 1, double 14 - 2, Main cables</p>
<b>SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)</b>	80 A, Maximum motor rating (UL/CSA)
<b>TIGHTENING TORQUE</b>	3.3 Nm, Screw terminals,

Main cables	
<b>TERMINAL CAPACITY (FLEXIBLE)</b>	1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables, Spring-loaded terminals
	2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables, Spring-loaded terminals
<b>RATED INSULATION VOLTAGE (UI)</b>	690 V
<b>RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947)</b>	700 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-1, 380 V, 400 V, 415 V</b>	80 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 220 V, 230 V, 240 V</b>	50 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 380 V, 400 V, 415 V</b>	50 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 440 V</b>	50 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 500 V</b>	50 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-3, 660 V, 690 V</b>	32 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 220 V, 230 V, 240 V</b>	21 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 400 V</b>	21 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 440 V</b>	21 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 500 V</b>	21 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-4, 660 V, 690 V</b>	17 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 110 V</b>	50 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-1, 220 V</b>	45 A
<b>RATED OPERATIONAL</b>	60 A

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**CURRENT (IE) AT DC-1, 60**

**V**

**RATED OPERATIONAL**

**CURRENT FOR SPECIFIED** 50 A  
**HEAT DISSIPATION (IN)**

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**RATED OPERATIONAL**

**POWER AT AC-3, 240 V, 50** 17 kW  
**Hz**

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**RATED OPERATIONAL**

**POWER AT AC-3, 380/400** 22 kW  
**V, 50 Hz**

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**RATED OPERATIONAL**

**POWER AT AC-3, 415 V, 50** 30 kW  
**Hz**

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**RATED OPERATIONAL**

**POWER AT AC-4, 220/230** 6 kW  
**V, 50 Hz**

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**RATED OPERATIONAL**

**POWER AT AC-4, 240 V, 50** 6.5 kW  
**Hz**

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**RATED OPERATIONAL**

**POWER AT AC-4, 380/400** 10 kW  
**V, 50 Hz**

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**RATED OPERATIONAL**

**POWER AT AC-4, 415 V, 50** 11 kW  
**Hz**

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**RATED OPERATIONAL**

**POWER AT AC-4, 440 V, 50** 12 kW  
**Hz**

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**RATED OPERATIONAL**

**POWER AT AC-4, 500 V, 50** 13 kW  
**Hz**

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**RATED OPERATIONAL**

**POWER AT AC-4, 660/690** 14 kW  
**V, 50 Hz**

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**RATED OPERATIONAL**

**POWER (NEMA)** 29.8 kW

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**RATED OPERATIONAL**

**VOLTAGE (UE) AT AC -** 690 V  
**MAX**

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**RESISTANCE PER POLE**

1.9 mΩ

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**STATIC HEAT**

**DISSIPATION, NON-** 4.1 W  
**CURRENT-DEPENDENT**  
**PVS**

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**STRIPPING LENGTH**

**(CONTROL CIRCUIT** 10 mm  
**CABLE)**

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**STRIPPING LENGTH**

**(MAIN CABLE)** 14 mm

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**SWITCHING TIME (AC**

**OPERATED, MAKE** 18 ms

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**CONTACTS, CLOSING  
DELAY) - MAX**

**SWITCHING TIME (AC  
OPERATED, MAKE  
CONTACTS, CLOSING  
DELAY) - MIN**

12 ms

**SWITCHING TIME (AC  
OPERATED, MAKE  
CONTACTS, OPENING  
DELAY) - MAX**

13 ms

**SWITCHING TIME (AC  
OPERATED, MAKE  
CONTACTS, OPENING  
DELAY) - MIN**

8 ms

**SHORT-CIRCUIT CURRENT  
RATING (BASIC RATING)**

5 kA, 250 A max. fuse,  
SCCR (UL/CSA)

**5 kA, 250 A max. CB, SCCR  
(UL/CSA)**

**SHORT-CIRCUIT CURRENT  
RATING (HIGH FAULT AT  
480 V)**

100 kA, 150 A CLASS J max.  
fuse, SCCR (UL/CSA)  
65 kA, 100 A max. CB,  
SCCR (UL/CSA)

**SHORT-CIRCUIT CURRENT  
RATING (HIGH FAULT AT  
600 V)**

100 kA, 150 A CLASS J max.  
fuse, SCCR (UL/CSA)

**SHORT-CIRCUIT  
PROTECTION RATING  
(TYPE 1 COORDINATION)  
AT 400 V**

160 A gG/gL

**SUITABLE FOR**

Also motors with efficiency  
class IE3

**SHORT-CIRCUIT  
PROTECTION RATING  
(TYPE 1 COORDINATION)  
AT 690 V**

80 A gG/gL

**SHORT-CIRCUIT  
PROTECTION RATING  
(TYPE 2 COORDINATION)  
AT 400 V**

80 A gG/gL

**SHORT-CIRCUIT  
PROTECTION RATING  
(TYPE 2 COORDINATION)  
AT 690 V**

63 A gG/gL

**SPECIAL PURPOSE  
RATING OF BALLAST  
ELECTRICAL DISCHARGE  
LAMPS**

79 A (600V 60Hz 3phase,  
347V 60Hz 1phase)

79 A (480V 60Hz 3phase,  
277V 60Hz 1phase)

**SPECIAL PURPOSE  
RATING OF ELEVATOR  
CONTROL**

40 HP, 600 V 60 Hz 3-ph,  
(UL/CSA)

10 HP, 200 V 60 Hz 3-ph,  
(UL/CSA)

42 A, 240 V 60 Hz 3-ph,  
(UL/CSA)

	(UL/CSA) 41 A, 600 V 60 Hz 3-ph, (UL/CSA) 32.2 A, 200 V 60 Hz 3-ph, (UL/CSA) 15 HP, 240 V 60 Hz 3-ph, (UL/CSA) 30 HP, 480 V 60 Hz 3-ph, (UL/CSA)
<b>SPECIAL PURPOSE</b> <b>RATING OF RESISTANCE</b> <b>AIR HEATING</b>	79 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA) 79 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA)
<b>SPECIAL PURPOSE</b> <b>RATING OF TUNGSTEN</b> <b>INCANDESCENT LAMPS</b>	74 A, 600 V 60 Hz 3phase, 347 V 60 Hz 1phase, (UL/CSA) 74 A, 480 V 60 Hz 3phase, 277 V 60 Hz 1phase, (UL/CSA)
<b>CONVENTIONAL</b> <b>THERMAL CURRENT ITH</b> <b>AT 40°C (3-POLE, OPEN)</b>	80 A
<b>CONVENTIONAL</b> <b>THERMAL CURRENT ITH</b> <b>AT 50°C (3-POLE, OPEN)</b>	71 A
<b>CONVENTIONAL</b> <b>THERMAL CURRENT ITH</b> <b>AT 60°C (3-POLE, OPEN)</b>	65 A
<b>RATED OPERATIONAL</b> <b>POWER AT AC-3, 440 V, 50</b> <b>Hz</b>	32 kW
<b>RATED OPERATIONAL</b> <b>POWER AT AC-3, 500 V, 50</b> <b>Hz</b>	36 kW
<b>RATED OPERATIONAL</b> <b>POWER AT AC-3, 690 V, 50</b> <b>Hz</b>	30 kW
<b>ACTUATING VOLTAGE</b>	230 V 50/60 Hz
<b>ALTITUDE</b>	Max. 2000 m
<b>OPERATING VOLTAGE AT</b> <b>AC, 50 Hz - MIN</b>	230 V
<b>OPERATING VOLTAGE AT</b> <b>AC, 50 Hz - MAX</b>	690 V
<b>OPERATING VOLTAGE AT</b> <b>AC, 60 Hz - MIN</b>	230 V
<b>OPERATING VOLTAGE AT</b> <b>AC, 60 Hz - MAX</b>	690 V

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