DATASHEET - MSC-D-2,5-M7(230V50HZ)/BBA



DOL starter, 380 V 400 V 415 V: 0.75 kW, Ir= 1.6 - 2.5 A, 230 V 50 Hz, 240 V 60 Hz, AC voltage



Powering Business Worldwide

Part no. MSC-D-2,5-M7(230V50HZ)/BBA

Catalog No. 102952

Alternate Catalog XTSC2P5B007BFNL-A

No.

EL-Nummer 4315413

(Norway)

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Delivery program			
Basic function			DOL starters (complete devices)
Basic device			MSC
			IE3 🗸
Notes			Also suitable for motors with efficiency class IE3. IE3-ready devices are identified by the logo on their packaging.
Connection to SmartWire-DT			no
Motor ratings			
Motor rating			
AC-3			
380 V 400 V 415 V	P	kW	0.75
Rated operational current			
AC-3			
380 V 400 V 415 V	l _e	Α	1.9
Rated short-circuit current 380 - 415 V	I_q	kA	100
Setting range			
Setting range of overload releases	Ir	Α	1.6 - 2.5
中			
Coordination			Type of coordination "1" Type of coordination "2"
Contact sequence			M 3~
Actuating voltage			230 V 50 Hz, 240 V 60 Hz
			AC voltage
Motor-protective circuit-breakers PKZM0-2,5			

Contactor DILM7-10(...)

DOL starter wiring set
Mechanical connection element and electrical electric contact module PKZM0-XDM12

Notes

BK25/3-PKZ0-E extension terminal and if necessary B3.../...-PKZ0 three-phase commoning link can be added to motor-starter combinations to make Type F starters in accordance with UL508.

Notes

The DOL starters (complete units) consist of a PKZM0 motor protective circuit breaker and a DILM contactor. These combinations are mounted on the busbar adapters.

The connection of the main circuit between the motor protective circuit breaker and the contactor is established with an electrical contact module.

Cannot be combined with NHI-E-...-PKZ0-C standard auxiliary contact with spring-cage terminal.

Further information	Page
Technical data PKZM0	→ PKZM0
Accessories PKZ	→ 072896
Technical data DILM	→ DILM
Accessories DILM	→ 281199

Technical data

General Standards

			CSA C 22.2 No. 14 (on request)
Altitude		m	Max. 2000
Ambient temperature			-25 - +55
Main conducting paths			
Rated impulse withstand voltage	U_{imp}	V AC	6000
Overvoltage category/pollution degree			III/3
Rated operational voltage	U _e	V	230 - 415

UL 508 (on request)

Additional technical data

Rated operational current Open, 3-pole: 50 - 60 Hz 380 V 400 V

Motor protective circuit breaker PKZM0, PKE			PKZM0 motor-protective circuit-breakers, see motor-protective circuit-breakers/ PKZM0 product group DILM contactors, see contactor product group DILET timing relay, ETR, see contactors, electronic timing relays product group
DILM contactors			
Power consumption of the coil in a cold state and 1.0 x $\rm U_{\rm S}$			
Dual-voltage coil 50 Hz	Sealing	W	1.2

Α

2.5

Rating data for approved types

Auxiliary contacts		
Pilot Duty		
AC operated		A600
DC operated		P300
General Use		
AC	V	600
AC	Α	15
DC	V	250
DC	А	1

Design verification as per IEC/EN 61439

Rated operational current for specified heat dissipation In A 2.5 Heat dissipation per pole, current-dependent P _{vid} W 1.9 Equipment heat dissipation, current-dependent P _{vid} W 5.7 Static heat dissipation, non-current-dependent P _{vs} W 1.4	
Equipment heat dissipation, current-dependent P _{vid} W 5.7	
Nu viu	
Static heat dissination non current dependent	
Static heat dissipation, non-current-dependent P _{vs} W 1.4	
Heat dissipation capacity $P_{diss} \qquad \qquad W \qquad 0$	
Operating ambient temperature min. °C -25	
Operating ambient temperature max. °C 55	
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 7.0

Low-voltage industrial components (EG000017) / Motor starter/Motor starter combination (EC001037)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss10.0.1-27-37-09-05 [AJZ718013])

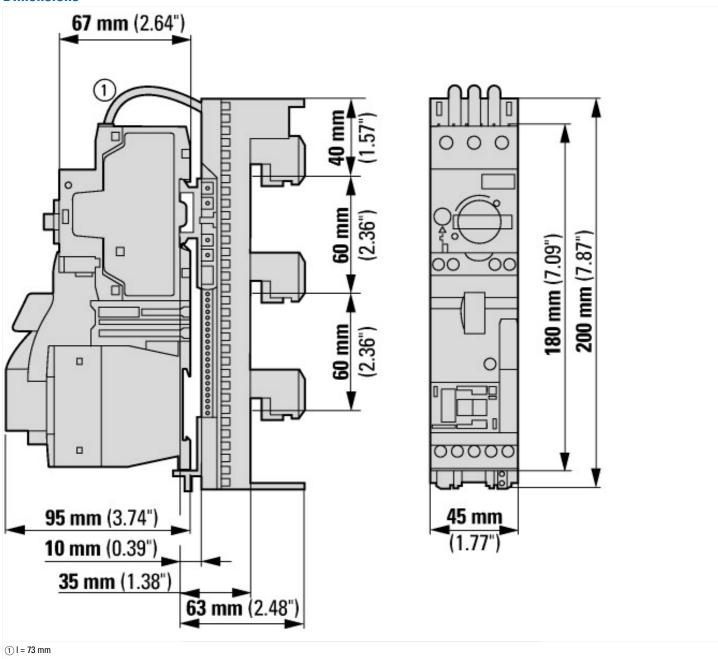
Rated control supply voltage Us at DC V 0 - 0 Voltage type for actuating AC Rated operation power at AC-3, 230 V, 3-phase kW 0.37 Rated operation power at AC-3, 400 V kW 0.5 Rated power, 460 V, 60 Hz, 3-phase kW 0 Rated operation current le A 1.9 Rated operation current at AC-3, 400 V A 2.5 Neveload release current setting A 1.6-2.5 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 500 Y/347 V A 0 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact I Ves Ambient temperature, upper operating limit °C 90 Temperature compensated overload protection Yes CLASS 10 Release class CLASS 10 Crew connection Rail mounting possible Yes With transformer No			
Rated control supply voltage Us at AC 50HZ V 230 - 230 Rated control supply voltage Us at AC 60HZ V 0 - 0 Notage byse for actuating AC AC Rated operation power at AC-3, 230 V, 3-phase RW 0.75 Rated power, 460 V, 60 Hz, 3-phase RW 0.75 Rated power, 575 V, 60 Hz, 3-phase RW 0 Rated operation current Ie A 1.9 Rated operation current at AC-3, 400 V A 2.5 Verload release current setting A 1.9 Rated operation short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact Yes 6 Temperature compensated overload protection Yes 6 Release class Yes CLASS 10 Temperature compensated overload protection Yes CLASS 10 <t< td=""><td>Kind of motor starter</td><td></td><td>Direct starter</td></t<>	Kind of motor starter		Direct starter
Rated control supply voltage Us at AC 60HZ V 0 - 0 Rated control supply voltage Us at DC V 0 - 0 Voltage type for actuating M AC Rated operation power at AC-3, 230 V,3-phase kW 0.37 Rated operation power at AC-3, 400 V kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated operation current le A 1.9 Rated operation current at AC-3, 400 V A 2.5 Rated operation current at AC-3, 400 V A 2.5 Overload release current setting A 1.6 - 2.5 Rated conditional short-circuit current, type 1, 480 V/277 V A 0 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally closed contact P 6 Number of auxiliary contacts as normally closed contact P 6 Release class C 6 Release class C 6 Release class C 6 <td>With short-circuit release</td> <td></td> <td>Yes</td>	With short-circuit release		Yes
Rated control supply voltage Us at DC V 0 - 0 Voltage type for actuating AC Rated operation power at AC-3, 230 V, 3-phase kW 0.37 Rated operation power at AC-3, 400 V kW 0.5 Rated power, 460 V, 60 Hz, 3-phase kW 0 Rated operation current le A 1.9 Rated operation current at AC-3, 400 V A 2.5 Neveload release current setting A 1.6-2.5 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 500 Y/347 V A 0 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact I Ves Ambient temperature, upper operating limit °C 90 Temperature compensated overload protection Yes CLASS 10 Release class CLASS 10 Crew connection Rail mounting possible Yes With transformer No	Rated control supply voltage Us at AC 50HZ	V	230 - 230
Voltage type for actuating AC Rated operation power at AC-3, 200 V, 3-phase kW 0.37 Rated operation power at AC-3, 400 V kW 0.75 Rated power, 750 V, 60 Hz, 3-phase kW 0 Rated operation current le kW 0 Rated operation current at AC-3, 400 V A 25 Rated operation current at AC-3, 400 V A 25 Overload release current setting A 1.8-2.5 Rated conditional short-circuit current, type 1, 800 V/347 V A 0 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact V 6 Ambient temperature, upper operating limit °C 6 Temperature compensated overload protection Y Yes Release class CLASS 10 Crew connection Type of electrical connection of main circuit X Xerew connection Rail	Rated control supply voltage Us at AC 60HZ	V	0 - 0
Rated operation power at AC-3, 230 V, 3-phase kW 0.37 Rated operation power at AC-3, 400 V kW 0.75 Rated power, 460 V, 60 Hz, 3-phase kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated power, 480 V, 60 Hz, 3-phase kW 0 Rated power, 480 V, 60 Hz, 3-phase kW 0 Rated operation current at AC-3, 400 V A 1.9 Noveload release current setting A 1.6 - 2.5 Rated conditional short-circuit current, type 1, 480 V/277 V A 0 Rated conditional short-circuit current, type 1, 600 V/347 V A 0 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 60 Number of auxiliary contacts as normally closed contact F 60 Ambient temperature, upper operating limit C 60 Tamperature compensated overload protection F CLASS 10 Release class C CLASS 10 Ra	Rated control supply voltage Us at DC	V	0 - 0
Rated operation power at AC-3, 400 V kW 0.75 Rated power, 460 V, 60 Hz, 3-phase kW 0 Rated operation current le AW 1.9 Rated operation current at AC-3, 400 V A 2.5 Overload release current setting A 1.6 - 2.5 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 800 Y/347 V A 50000 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact A 60 Ambient temperature, upper operating limit *C 60 Temperature compensated overload protection *Yes CLASS 10 Release class *C CLASS 10 Release class *Yes Screw connection Type of electrical connection of main circuit *Yes Screw connection Rail mounting possible *Yes With transformer *Yes *Yes Vinth transformer	Voltage type for actuating		AC
Rated power, 460 V, 60 Hz, 3-phase Rated power, 575 V, 60 Hz, 3-phase Rated operation current le Rated operation current at AC-3, 400 V Rated operation current at AC-3, 400 V Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current, type 2, 400 V Rumber of auxiliary contacts as normally open contact Rumber of auxiliary contacts as normally closed contact Release class Relea	Rated operation power at AC-3, 230 V, 3-phase	kW	0.37
Rated power, 575 V, 60 Hz, 3-phase Rated operation current le Rated operation current at AC-3, 400 V Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current type 2, 230 V Rated conditional short-circuit current type 2, 400 V Rated conditional short-circuit current type 1, 400 V Rated conditional short-circuit current type	Rated operation power at AC-3, 400 V	kW	0.75
Rated operation current Ie A 19 Rated operation current at AC-3, 400 V A 2.5 Overload release current setting A 16 - 2.5 Rated conditional short-circuit current, type 1, 600 Y/347 V A 0 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact B 1 1 Number of auxiliary contacts as normally closed contact B 6 6 Temperature, upper operating limit C Yes CLASS 10 Temperature compensated overload protection C CLASS 10 Crew connection Type of electrical connection of main circuit C Yes Crew connection Type of electrical connection for auxiliary- and control current circuit C Yes Yes With transformer No No No Number of command positions C Yes No Suitable for emergency stop No No No Cordination cl	Rated power, 460 V, 60 Hz, 3-phase	kW	0
Rated operation current at AC-3, 400 V A 2.5 Overload release current setting A 1.6 - 2.5 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 600 Y/347 V A 50000 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact P 1 Number of auxiliary contacts as normally closed contact P 6 Ambient temperature, upper operating limit P Yes Temperature compensated overload protection P Yes Release class CLASS 10 Screw connection Type of electrical connection of main circuit Screw connection Yes With transformer Yes No With transformer No No Number of command positions No No Suitable for emergency stop Class 2 Class 2	Rated power, 575 V, 60 Hz, 3-phase	kW	0
Overload release current setting Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 240 V Rated conditional short-circuit current, type 2, 400 V Rated conditional sho	Rated operation current le	Α	1.9
Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current, type 2, 400 V Rumber of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit Temperature compensated overload protection Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3	Rated operation current at AC-3, 400 V	Α	2.5
Rated conditional short-circuit current, type 1, 600 Y/347 V A 500000 Rated conditional short-circuit current, type 2, 230 V A 500000 Rated conditional short-circuit current, type 2, 400 V A 500000 Number of auxiliary contacts as normally open contact I 1 Number of auxiliary contacts as normally closed contact I 0 Ambient temperature, upper operating limit C C 60 Temperature compensated overload protection I Ves Release class Class C CLASS 10 Type of electrical connection of main circuit C Screw connection I Screw connec	Overload release current setting	Α	1.6 - 2.5
Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit CC 60 Temperature compensated overload protection Release class Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3	Rated conditional short-circuit current, type 1, 480 Y/277 V	Α	0
Rated conditional short-circuit current, type 2, 400 V Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit CC Release class Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 A S0000 1 1 1 1 1 1 1 1 1 1 1 1	Rated conditional short-circuit current, type 1, 600 Y/347 V	Α	0
Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit °C 60 Temperature compensated overload protection Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 I 1 1	Rated conditional short-circuit current, type 2, 230 V	Α	50000
Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit CC CB CB CB CB CB CB CB CB C	Rated conditional short-circuit current, type 2, 400 V	Α	50000
Ambient temperature, upper operating limit °C 60 Temperature compensated overload protection Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 **C 60 CLASS 10 Screw connection Screw connection No Screw connection No Class 2 Class 2	Number of auxiliary contacts as normally open contact		1
Temperature compensated overload protection Release class CLASS 10 Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Yes Yes CLASS 10 Screw connection Screw connection No Screw connection Yes No Class 2	Number of auxiliary contacts as normally closed contact		0
Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 CLASS 10 Screw connection Screw connection No Screw connection Screw connection O Screw connectio	Ambient temperature, upper operating limit	°C	60
Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Screw connection Yes No Class 2	Temperature compensated overload protection		Yes
Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Screw connection Yes No No Class 2	Release class		CLASS 10
Rail mounting possible With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Yes No Class 2	Type of electrical connection of main circuit		Screw connection
With transformer No Number of command positions 0 Suitable for emergency stop No Coordination class according to IEC 60947-4-3 Class 2	Type of electrical connection for auxiliary- and control current circuit		Screw connection
Number of command positions 0 Suitable for emergency stop No Coordination class according to IEC 60947-4-3 Class 2	Rail mounting possible		Yes
Suitable for emergency stop Coordination class according to IEC 60947-4-3 Class 2	With transformer		No
Coordination class according to IEC 60947-4-3 Class 2	Number of command positions		0
	Suitable for emergency stop		No
Number of indicator lights 0	Coordination class according to IEC 60947-4-3		Class 2
	Number of indicator lights		0

External reset possible		No
With fuse		No
Degree of protection (IP)		IP20
Degree of protection (NEMA)		Other
Supporting protocol for TCP/IP		No
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		No
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for MODBUS		No
Supporting protocol for Data-Highway		No
Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		No
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		No
Width	mm	45
Height	mm	200
Depth	mm	154

Approvals

UL60947-4-1A; CSA-C22.2 No. 14-10; IEC60947-4-1; CE marking
E123500
NKJH
12528
3211-04
UL listed, CSA certified
No

Dimensions



MSC-D-...-M7[...15]BBA...

Assets (links)

Declaration of CE Conformity

00002885

Instruction Leaflets

IL034038ZU2018_06

Additional product information (links)

IL034038ZU (AWA1210-2246) Direct-on-line starter up to 15 A		
IL034038ZU (AWA1210-2246) Direct-on-line starter up to 15 A	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL034038ZU2018_06.pdf	
IL03402015Z (AWA1210-2324) Busbar adapter		
IL03402015Z (AWA1210-2324) Busbar adapter	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402015Z2018_05.pdf	
Motor starters and "Special Purpose Ratings" for the North American market	http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf	
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf	