Similar to illustration

Circuit-breaker, 3p, 5A

Part no. NZMN2-S5-CNA
Article no. 103040

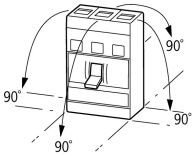
Powering Business Worldwide

Delivery program

Product range			Circuit-breaker
Protective function			Short-circuit protection
Standard/Approval			UL/CSA
Installation type			Fixed
Release system			Thermomagnetic release
Description			This circuit-breaker is only allowed to be used for UL/CSA applications. Motor protection in conjunction with contactor and overload relay With short-circuit release Without overload release Ir
Number of poles			3 pole
Standard equipment			Screw connection
Rated current = rated uninterrupted current	$I_n = I_u$	A	5
Setting range			
Short-circuit releases			
Non-delayed	$I_i = I_n$ x …		6 - 11

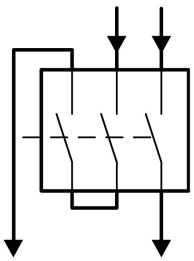
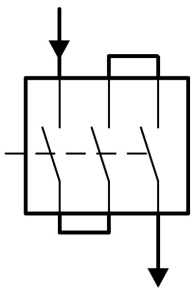
Technical data

General

Standards			UL/CSA
Protection against direct contact			Finger and back of hand proof to VDE 0106 Part 100
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Ambient temperature, storage		°C	- 40 - + 70
Operation		°C	-25 - +70
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27		g	20 (half-sinusoidal shock 20 ms)
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts		V AC	500
between the auxiliary contacts		V AC	300
Weight		kg	2.345
Mounting position			
Mounting position			Vertical and 90° in all directions  With residual-current release XFI: - NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in adapter elements - NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit: - NZM3, N3: vertical, 90 ° left - NZM4, N4: vertical with remote operator: - NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions
Direction of incoming supply			as required

Degree of protection			
Device			In the operating controls area: IP20 (basic degree of protection)
Enclosures			With insulating surround: IP40 With door coupling rotary handle: IP66
Terminations			Tunnel terminal: IP10 Phase isolator and strip terminal: IP00
Other technical data (sheet catalogue)			Weight Temperature dependency, Derating Effective power loss

Circuit-breakers

Rated surge voltage invariability	U_{imp}		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	U_e	V AC	690
Rated operational voltage	U_e	V DC	750
			Details apply for 3 pole system protection circuit-breaker with thermomagnetic release NZMN(H)1(2)(3)-A… to 500 A. For rated operating voltage switching via 3 contacts: DC correction factor for instantaneous release response value: NZM1: 1.25, NZM2: 1.35, NZM3: 1.45 Set value for I_i at DC = set value I_i AC/correction factor DC **Switching of one pole via two series contacts**  **Switching of one pole via three series contacts** 
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U_i	V	1000

Switching capacity

Rated short-circuit breaking capacity I_{cn}	I_{cn}		
Icu to IEC/EN 60947 test cycle O-t-CO	Icu	kA	
500 V DC	I_{cu}	kA	30
750 V DC	I_{cu}	kA	30
Rated short-time withstand current			
t = 0.3 s	I_{cw}	kA	1.9
t = 1 s	I_{cw}	kA	1.9
Rated making and breaking capacity			
Rated operational current	I_e	A	
DC-1			
500 V DC	I_e	CSA	5
750 V DC	I_e	CSA	5
DC - 3			
500 V DC	I_e	CSA	5
750 V DC	I_e	CSA	5
Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release)	Operations		20000
Lifespan, electrical			
AC-1			
400 V 50/60 Hz	Operations		10000
690 V 50/60 Hz	Operations		7500
AC--3			
400 V 50/60 Hz	Operations		6500

415 V 50/60 Hz	Operations		6500
690 V 50/60 Hz	Operations		5000
DC-1			
500 V DC		Operations	7500
750 V DC		Operations	7500
DC - 3			
500 V DC	Operations		3000
750 V DC	Operations		3000
Max. operating frequency		Ops/h	120
Total downtime in a short-circuit		ms	< 10

Terminal capacity

Standard equipment			Screw connection
Round copper conductor			
Box terminal			
Solid		mm^2	1 x (12 … 6)
Stranded		mm^2	1 x (4 … 350)
Tunnel terminal			
Solid		mm^2	1 x 6
Stranded		mm^2	
Stranded		mm^2	1 x (4 … 350)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm^2	1 x (11 … 6)
Stranded		mm^2	1 x (4 … 3/0)
Al conductors, Cu cable			
Solid		mm^2	1 x 16
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	2 x 16 x 0.8
Flat copper strip, with holes	max.	mm	10 x 16 x 0.8
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	2 x 9 x 0.8
	max.	mm	10 x 16 x 0.8
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	2 x 16 x 0.8
Flat copper strip, with holes	max.	mm	10 x 16 x 0.8
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M8
Direct on the switch			
	min.	mm	16 x 5
	max.	mm	20 x 5
Control cables			
		mm^2	1 x (18 … 14) 2 x (18 … 16)

Design verification as per IEC/EN 61439

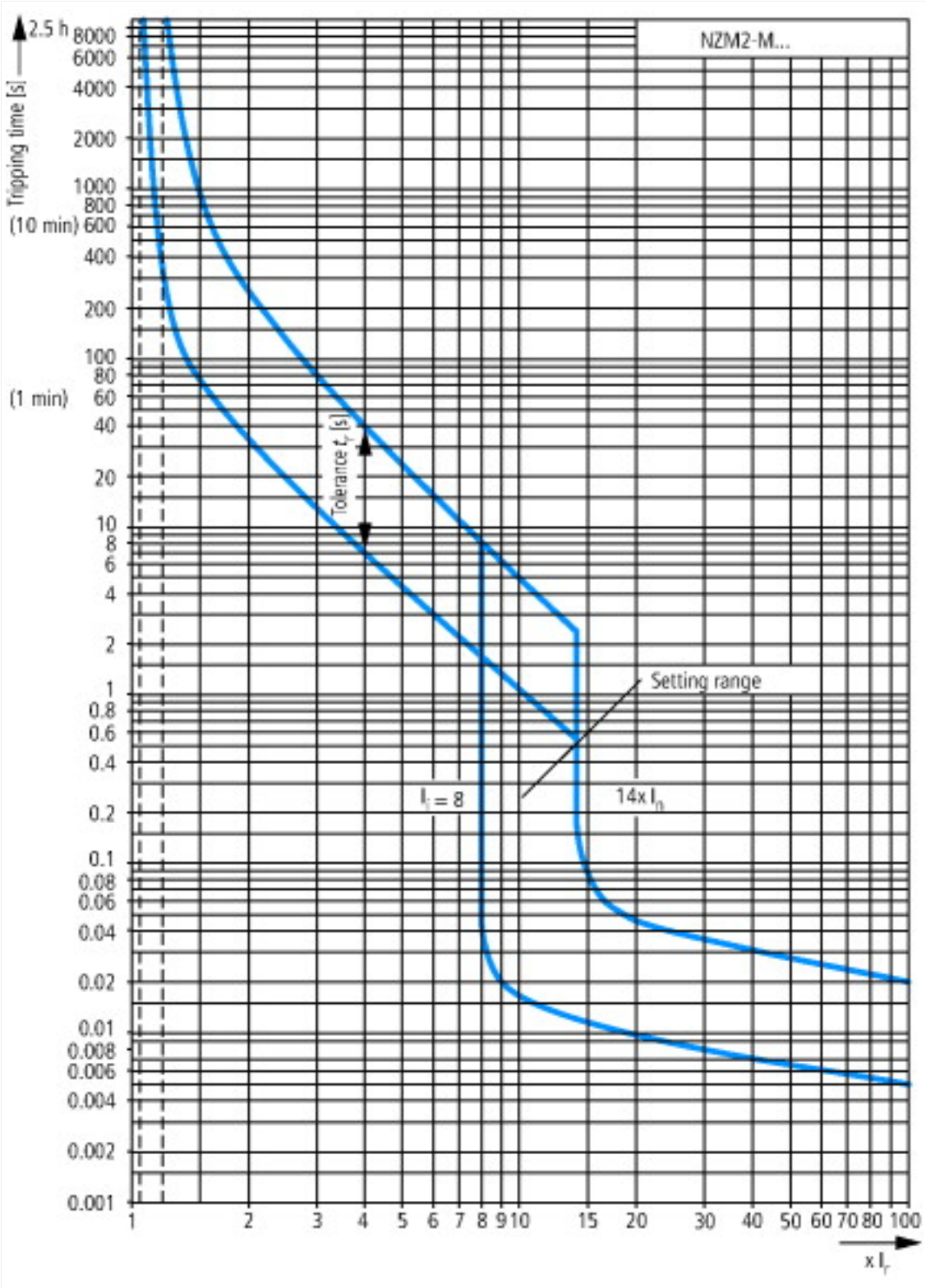
Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	5
Equipment heat dissipation, current-dependent	P_{vid}	W	0.35
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
IEC/EN 61439 design verification			

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.

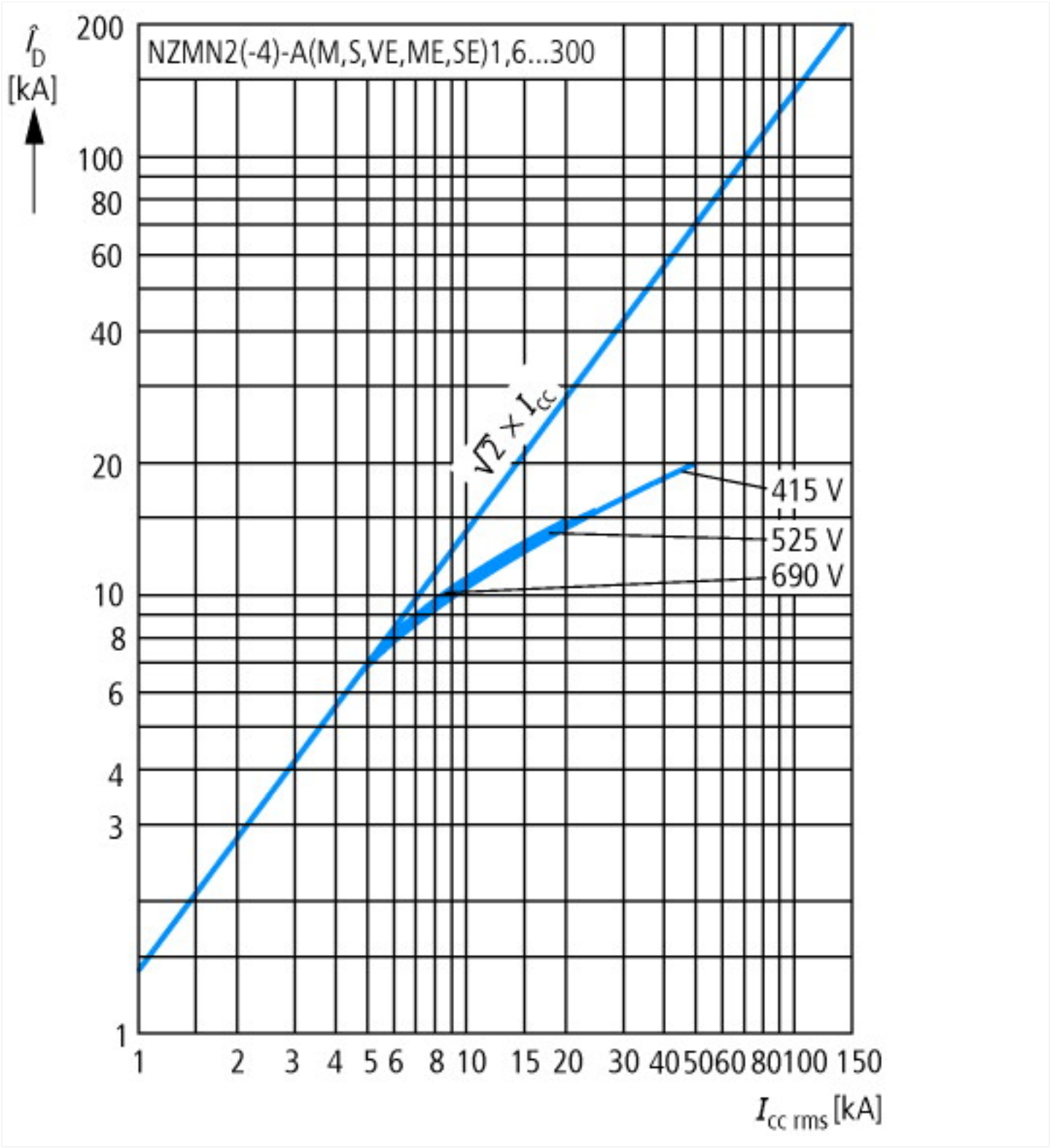
Approvals

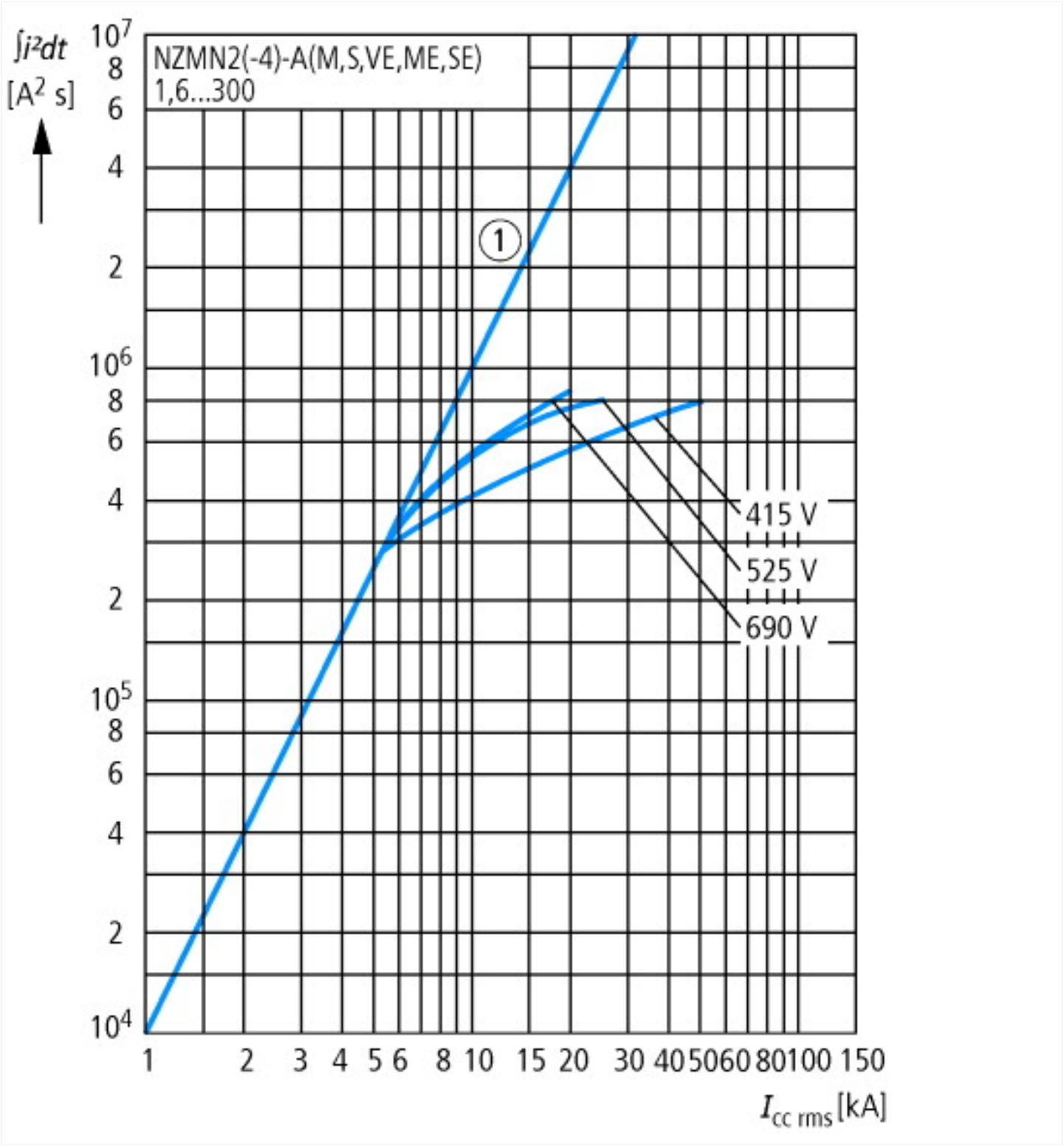
Product Standards	UL 489; CSA-C22.2 No. 5-09
UL File No.	E31593
UL Category Control No.	DKPU2
CSA File No.	022086
CSA Class No.	1432-01
North America Certification	UL recognized, CSA certified
Conditions of Acceptability	Only used in motor circuits in conjunction with suitable contactor and overload relay. SCCR value applies for complete combination starter only, consisting of instantaneous trip circuit breaker, contactor and overload relay.
Specially designed for North America	Yes
Suitable for	Branch circuits, feeder circuits
Current Limiting Circuit-Breaker	No
Max. Voltage Rating	600Y/347 V, 480 V
Degree of Protection	UL/CSA Type: -

Characteristics

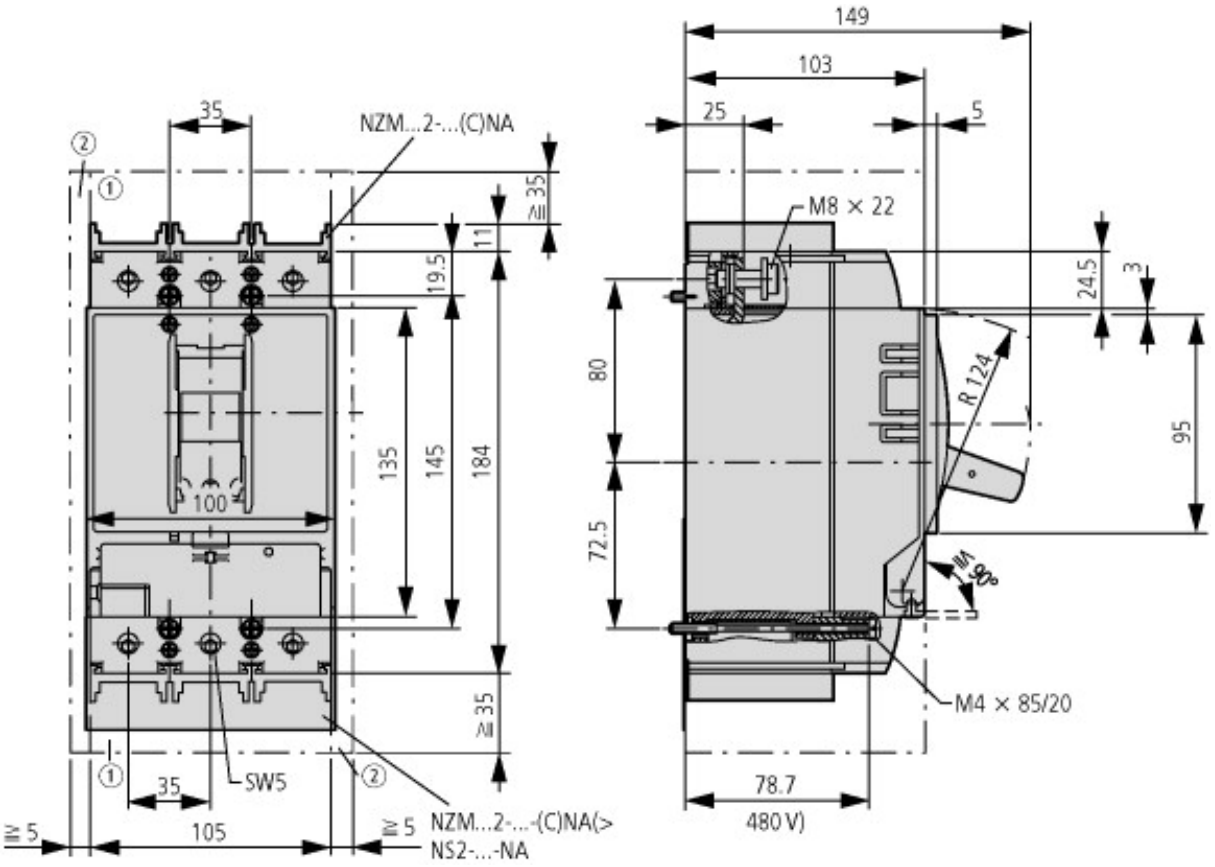


Short-circuit protection only!


NZMN2(-4)-A(M,S,VE,ME,SE)1,6...300
$\hat{I}_D$ [kA]
200
100
80
60
40
20
10
8
6
4
3
1
$\sqrt{2} \times I_{cc}$
415 V
525 V
690 V
1
2
3
4
5
6
8
10
15
20
30
40
50
60
80
100
150
$I_{cc\ rms}$ [kA]

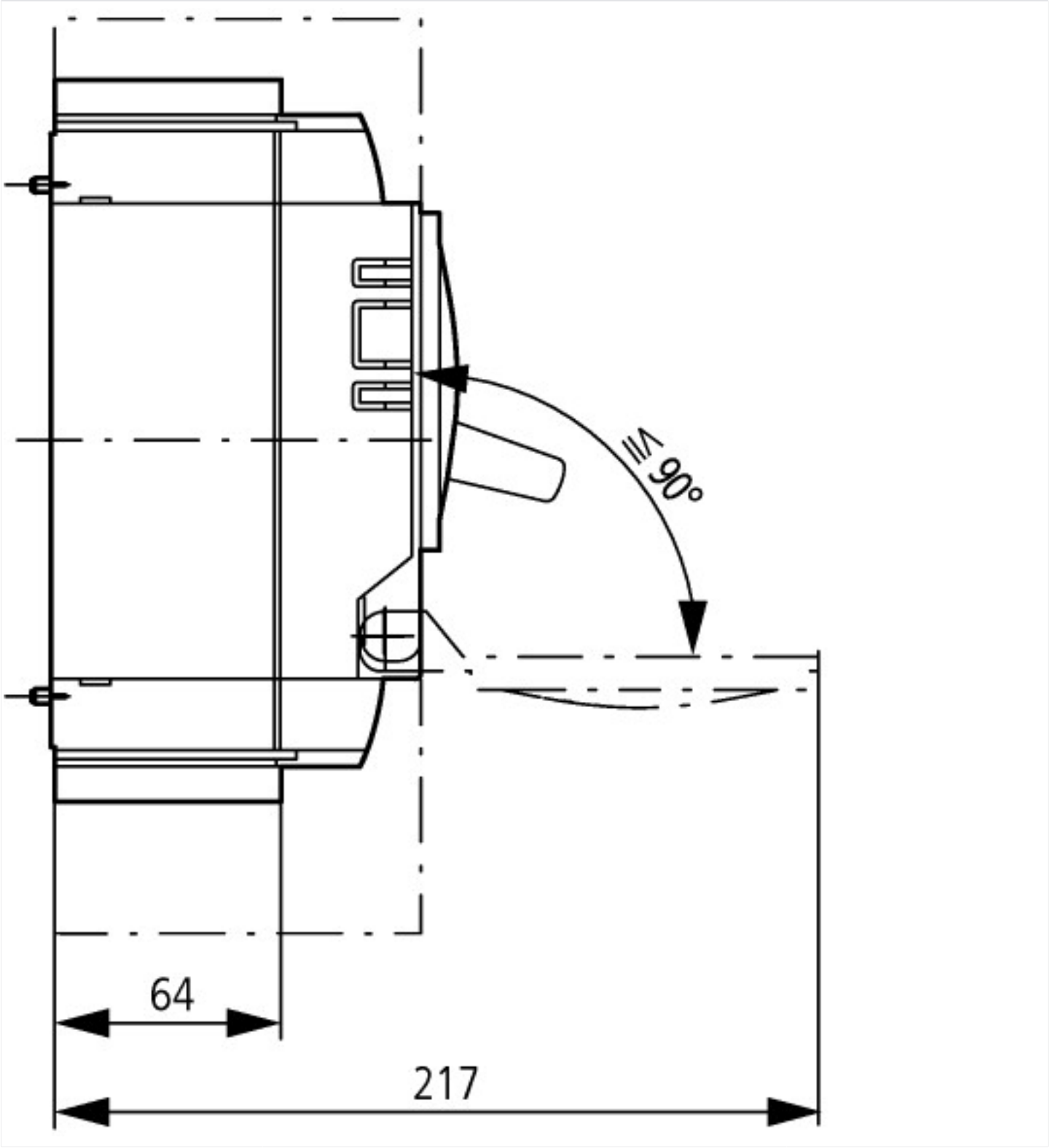

∫i²dt
[A² s]
NZMN2(-4)-A(M,S,VE,ME,SE)
1,6...300
1
415 V
525 V
690 V
$I_{cc\ rms}$ [kA]

Dimensions



① Blow out area, minimum clearance to adjacent parts

② Minimum clearance to adjacent parts



Additional product information (links)

IL01206006Z (AWA1230-1916) Circuit-Breaker, basic unit	
IL01206006Z (AWA1230-1916) Circuit-Breaker, basic unit	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL01206006Z2015_11.pdf
Weight	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.171
Temperature dependency, Derating	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172
Effective power loss	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.174