



Circuit-breaker, 3p, 90A, box terminals

Part no. **NZMN2-ME90-BT-NA**
 Article no. **142421**

Similar to illustration

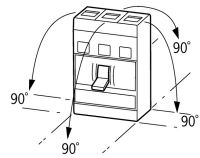
Delivery program

Product range				Circuit-breaker
Protective function				Motor protection
Standard/Approval				UL/CSA, IEC
Installation type				Fixed
Release system				Electronic release
Construction size				NZM2
Description				Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. 100% rated For use in motor circuits with contactor. Additional motor protective characteristics (calibration) to UL508, CSA-C22.2 No. 14-05. Adjustable overload releases Ir adjustable time delay setting to overcome current peaks tr: 2 – 20 s at 6 x Ir
Number of poles				3 pole
Standard equipment				Box terminal
Rated current = rated uninterrupted current	$I_n = I_u$	A		90
Switching capacity				
SCCR 480 V 60 Hz	I_{cu}	kA		35
SCCR 600V/347 V 60 Hz	I_{cu}	kA		25
Setting range				
Overload trip				
	I_r	A		45 - 90
Short-circuit releases				
Non-delayed	$I_i = I_n \times \dots$			2 - 14
Motor power	460 V 480 V	HP		60

Technical data

General

Standards				IEC/EN 60947
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	 <p>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</p>
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
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U_i	V	1000
Use in unearthed supply systems	V		≦ 690

Switching capacity

Rated short-circuit making capacity	I_{cm}		
240 V	I_{cm}	kA	187
400/415 V	I_{cm}	kA	105
440 V 50/60 Hz	I_{cm}	kA	74
525 V 50/60 Hz	I_{cm}	kA	53
690 V 50/60 H	I_c	kA	40
Rated short-circuit breaking capacity I_{cn}	I_{cn}		
I_{cu} to IEC/EN 60947 test cycle O-t-CO	I_{cu}	kA	
240 V 50/60 Hz	I_{cu}	kA	85
400/415 V 50/60 Hz	I_{cu}	kA	50
440 V 50/60 Hz	I_{cu}	kA	35
525 V 50/60 Hz	I_{cu}	kA	25
690 V 50/60 Hz	I_{cu}	kA	20
I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO	I_{cs}	kA	
240 V 50/60 Hz	I_{cs}	kA	85
400/415 V 50/60 Hz	I_{cs}	kA	50
440 V 50/60 Hz	I_{cs}	kA	35
525 V 50/60 Hz	I_{cs}	kA	25
690 V 50/60 Hz	I_{cs}	kA	5
Maximum low-voltage h.b.c. fuse		A gG/gL	355
			Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.
Technical data that diverge from products for the IEC market			

Switching capacity of NA switches (UL489, CSA 22.2 No. 5.1)
Short-circuit current rating SCCR

SCCR 240 V 60 Hz	I_{cu}	kA	85
SCCR 480 V 60 Hz	I_{cu}	kA	35
SCCR 600Y/347 V 60 Hz	I_{cu}	kA	25
Rated short-time withstand current			
t = 0.3 s	I_{cw}	kA	1.9
t = 1 s	I_{cw}	kA	1.9
Utilization category to IEC/EN 60947-2			A
Rated making and breaking capacity			
Rated operational current	I_e	A	
AC-1			
400/415 V 50/60 Hz	I_e	A	300
415 V	I_e	A	300
690 V 50/60 Hz	I_e	A	90
AC--3			
400/415 V 50/60 Hz	I_e	A	90
690 V 50/60 Hz	I_e	A	90
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
Max. operating frequency		Ops/h	120
Total downtime in a short-circuit		ms	< 10

Terminal capacity

Standard equipment			Box terminal
Round copper conductor			
Tunnel terminal			
Solid		mm ²	1 x 16
Al conductors, Cu cable			
Solid		mm ²	1 x 16
Copper busbar (width x thickness)			
Bolt terminal and rear-side connection	mm		
Screw connection			M8

Design verification as per IEC/EN 61439

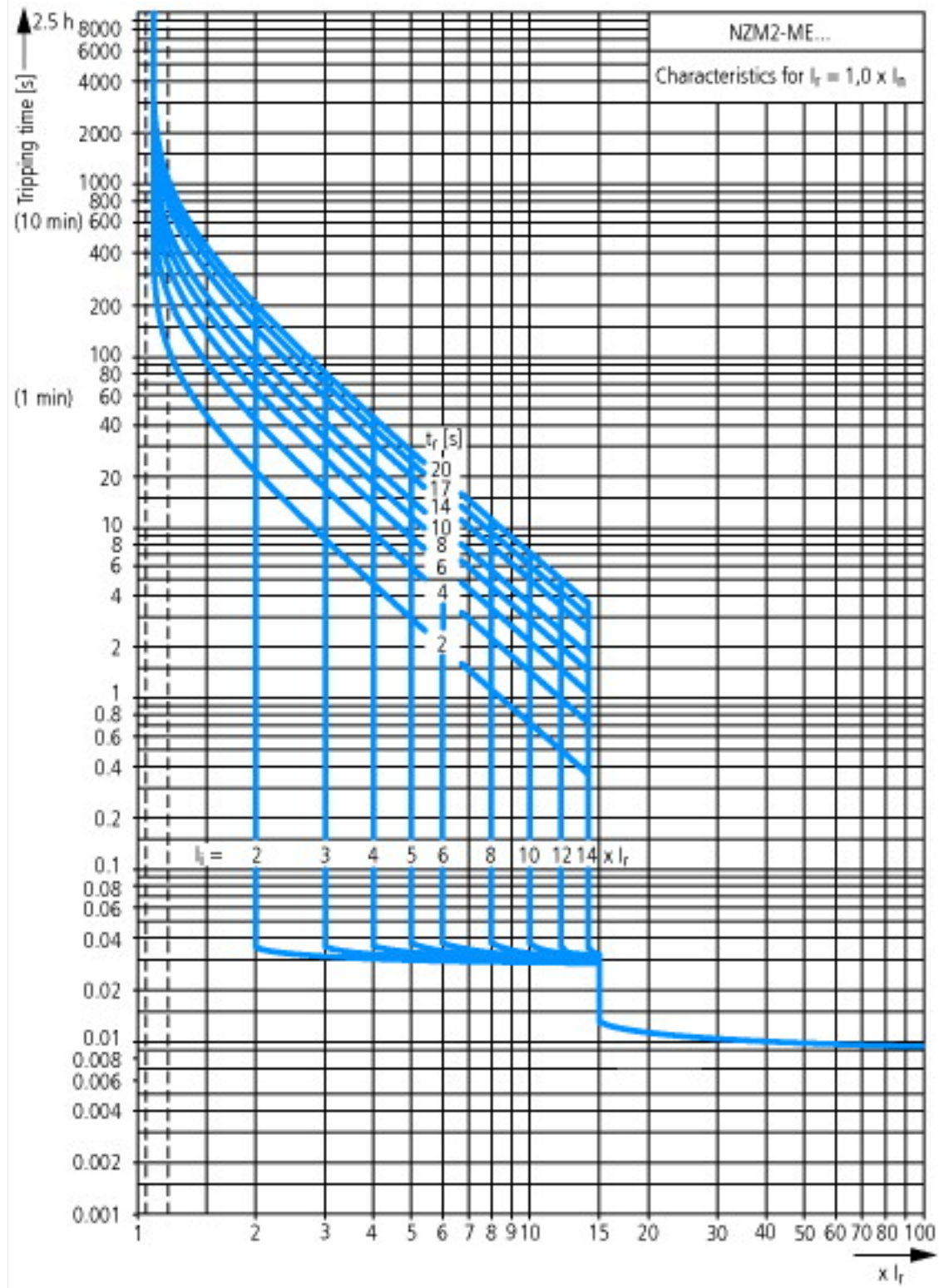
Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	90
Equipment heat dissipation, current-dependent	P_{vid}	W	6.68
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
IEC/EN 61439 design verification			
10.2 Strength 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.

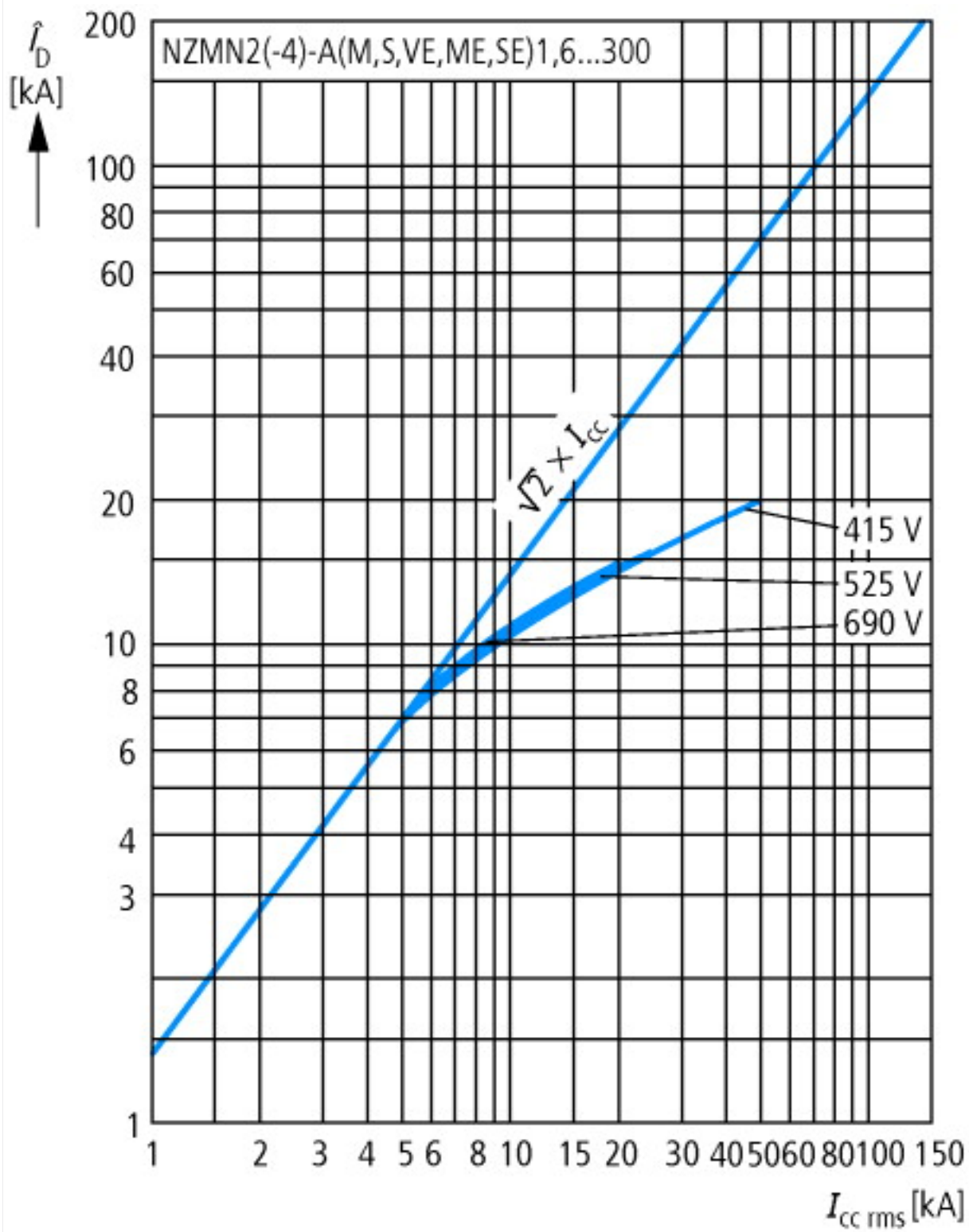
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, 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.

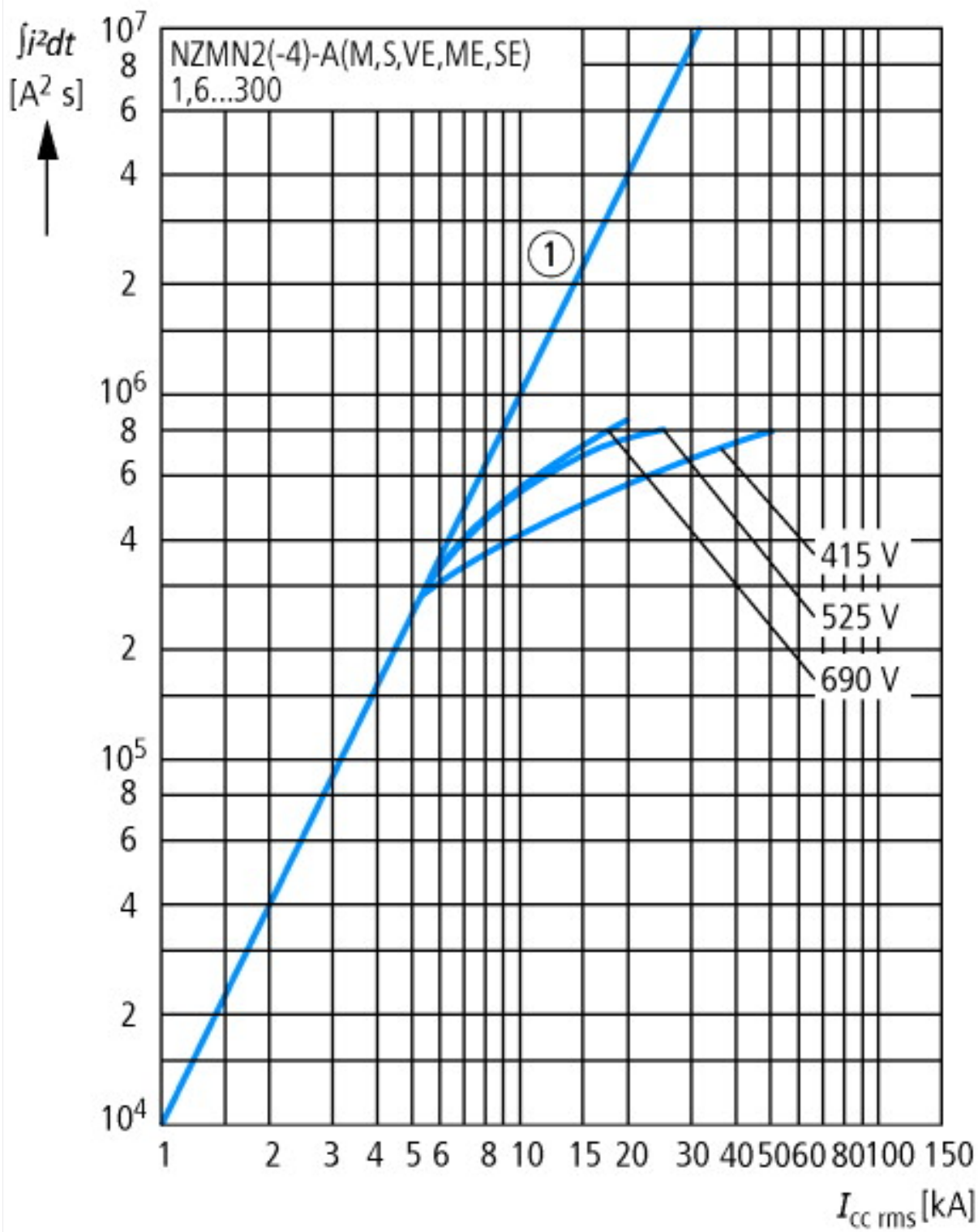
Approvals

Product Standards			UL 489; CSA-C22.2 No. 5-09; IEC 60947-2; CE marking
UL Category Control No.			DIVQ
North America Certification			Request filed for UL and CSA
Specially designed for North America			Yes, additionally calibrated according to UL 508.
Suitable for			Feeder circuits, branch circuits
Current Limiting Circuit-Breaker			No
Max. Voltage Rating			480 V
Degree of Protection			IEC: IP20; UL/CSA Type: -

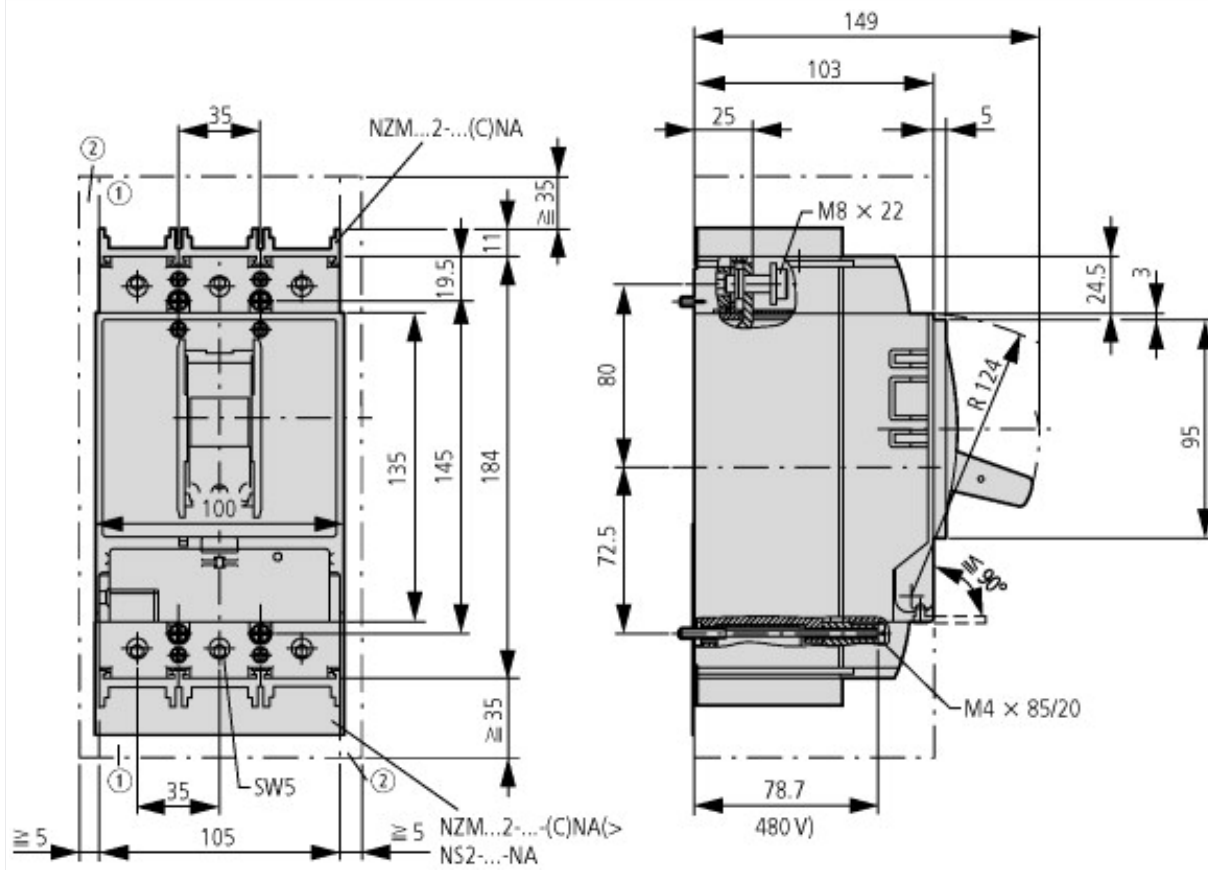
Characteristics







Dimensions



① Blow out area, minimum clearance to adjacent parts

② Minimum clearance to adjacent parts



Additional product information (links)

IL01203004Z (AWA1230-1913) Circuit-breaker, Switch-Disconnecter

IL01203004Z (AWA1230-1913) Circuit-breaker, Switch-Disconnecter ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL01203004Z2015_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>