



Circuit-breaker, 3p, 320A, withdrawable unit

Part no.
Catalog No.

NZMH3-S320-AVE
113567

Similar to illustration

Delivery program

Product range			Circuit-breaker
Protective function			Short-circuit protection
Standard/Approval			IEC
Installation type			Withdrawable
Release system			Thermomagnetic release
Construction size			NZM3
Description			Motor protection in conjunction with overload relay With short-circuit release Without overload release Ir IEC/EN 60947-4-1, IEC/EN 60947-2 The circuit-breaker fulfills all requirements for AC-3 switching category.
Number of poles			3 pole
Standard equipment			Screw connection
Rated current = rated uninterrupted current	$I_n = I_u$	A	320

Switching capacity

400/415 V 50 Hz	I_{cu}	kA	150
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Setting range

Short-circuit releases			
Non-delayed	$I_l = I_n \times \dots$		8 - 14

Motor rating AC-3 at 400 V 50/60 Hz

380 V 400 V	P	kW	160
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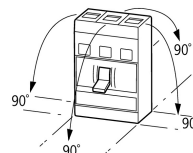
Rated operational current AC-3 at 400 V 50/60 Hz

400 V	I_e	A	279
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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	6.34
Mounting position			Vertical and 90° in all directions



With XFI earth-fault release:
 - NZM1, N1, NZM2, N2: vertical and 90° in all directions
 with plug-in unit
 - NZM1, N1, NZM2, N2: vertical, 90° right/left
 with withdrawable unit:
 - NZM3, N3: vertical, 90° right/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)

Temperature dependency, Derating

Circuit-breakers

Rated current = rated uninterrupted current

$I_n = I_u$ A 320

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 330

400/415 V

I_{cm} kA 330

440 V 50/60 Hz

I_{cm} kA 286

525 V 50/60 Hz

I_{cm} kA 143

690 V 50/60 H

I_c kA 74

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 150

400/415 V 50/60 Hz

I_{cu} kA 150

440 V 50/60 Hz

I_{cu} kA 130

525 V 50/60 Hz

I_{cu} kA 65

690 V 50/60 Hz

I_{cu} kA 35

I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO

I_{cs} kA

240 V 50/60 Hz

I_{cs} kA 150

400/415 V 50/60 Hz

I_{cs} kA 150

440 V 50/60 Hz

I_{cs} kA 130

525 V 50/60 Hz

I_{cs} kA 33

690 V 50/60 Hz

I_{cs} kA 9

Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.

Rated short-time withstand current

$t = 0.3$ s

I_{cw} kA 3.3

$t = 1$ s

I_{cw} kA 3.3

Utilization category to IEC/EN 60947-2

A

Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release)

Operations 15000

Lifespan, electrical

AC-1

400 V 50/60 Hz

Operations 5000

415 V 50/60 Hz	Operations	5000
690 V 50/60 Hz	Operations	3000
AC--3		
400 V 50/60 Hz	Operations	2000
415 V 50/60 Hz	Operations	2000
690 V 50/60 Hz	Operations	2000
Max. operating frequency	Ops/h	60
Total break time at short-circuit	ms	< 10

Terminal capacity

Standard equipment			Screw connection
Accessories required			NZM3-XAVS
Optional accessories			Box terminal Tunnel terminal connection on rear
Round copper conductor			
Box terminal			
Solid		mm ²	2 x 16
Stranded		mm ²	1 x (35 - 240) 2 x (25-120)
Tunnel terminal			
Solid		mm ²	1 x 16
Stranded			
1-hole		mm ²	1 x (16 - 185)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm ²	1 x 16 2 x 16
Stranded		mm ²	1 x (25 - 240) 2 x (25 - 240)
Connection width extension		mm ²	
Connection width extension		mm ²	2 x 300
Al circular conductor			
Tunnel terminal			
Solid		mm ²	1 x 16
Stranded			
Stranded		mm ²	1 x (25 - 185) ²⁾
Double hole		mm ²	1 x (50 - 240) 2 x (50 - 240)
			²⁾ Up to 240 mm ² can be connected depending on the cable manufacturer.
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	6 x 16 x 0.8
	max.	mm	10 x 24 x 1.0 + 5 x 24 x 1.0 (2 x) 8 x 24 x 1.0
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	6 x 16 x 0.8
Flat copper strip, with holes	max.	mm	10 x 32 x 1.0 + 5 x 32 x 1.0
Connection width extension		mm	(2 x) 10 x 50 x 1.0
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M10
Direct on the switch			
	min.	mm	20 x 5
	max.	mm	30 x 10 + 30 x 5
Connection width extension		mm	
Connection width extension	max.	mm	2 x (10 x 50)

Control cables			
		mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)

Design verification as per IEC/EN 61439

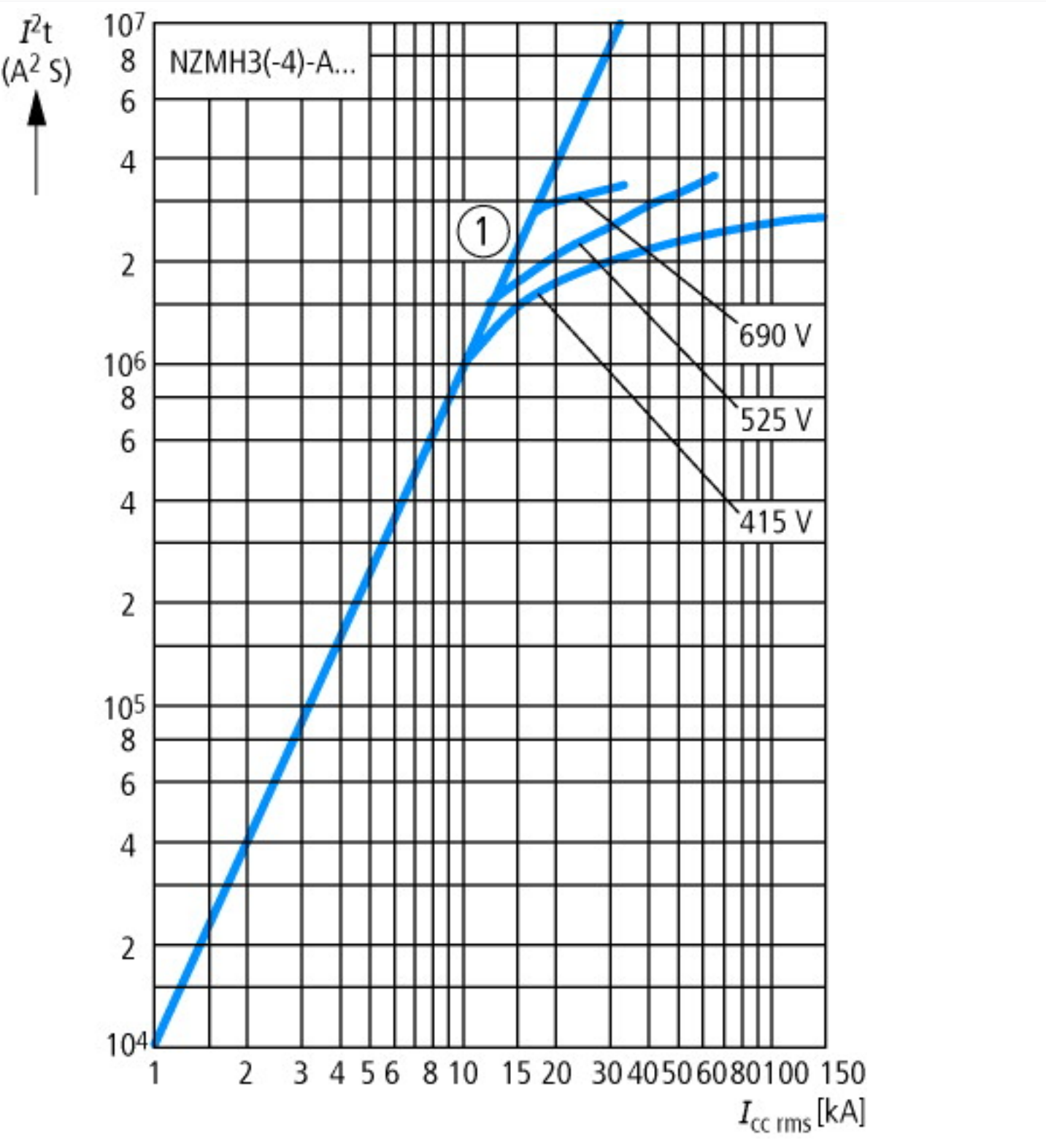
Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	320
Equipment heat dissipation, current-dependent	P _{vid}	W	78.64
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
IEC/EN 61439 design verification			
10.2 Strength 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.

Technical data ETIM 7.0

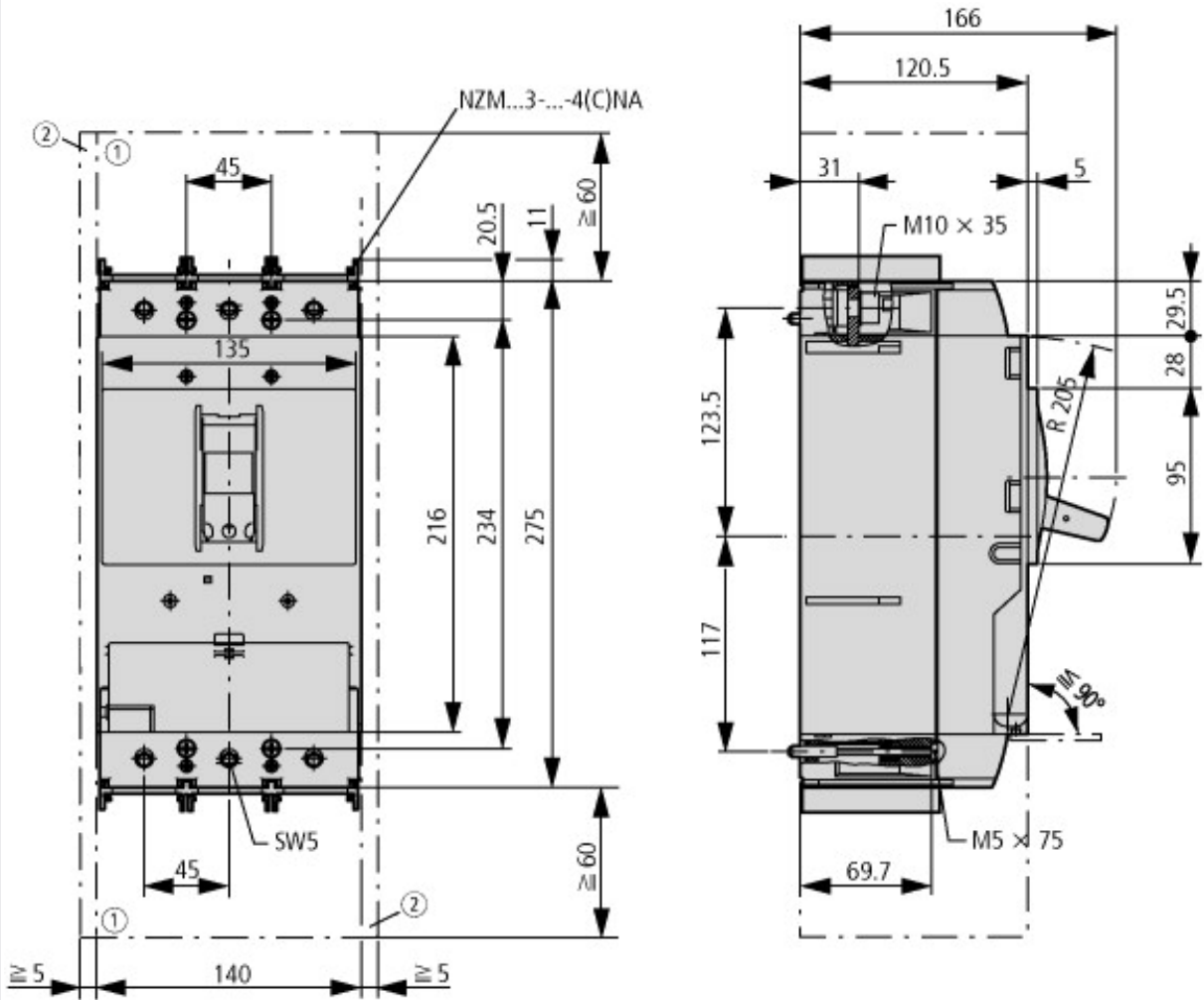
Low-voltage industrial components (EG000017) / Motor protection circuit-breaker (EC000074)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016])			
Overload release current setting		A	0 - 0
Adjustment range undelayed short-circuit release		A	8 - 14
With thermal protection			No
Phase failure sensitive			No
Switch off technique			Magnetic
Rated operating voltage		V	690 - 690
Rated permanent current I _u		A	320
Rated operation power at AC-3, 230 V		kW	90
Rated operation power at AC-3, 400 V		kW	160
Type of electrical connection of main circuit			Screw connection
Type of control element			Rocker lever
Device construction			Built-in device slide-in technique (withdrawable)
With integrated auxiliary switch			No
With integrated under voltage release			No

Number of poles		3
Rated short-circuit breaking capacity Icu at 400 V, AC	kA	150
Degree of protection (IP)		IP20
Height	mm	260
Width	mm	185
Depth	mm	346

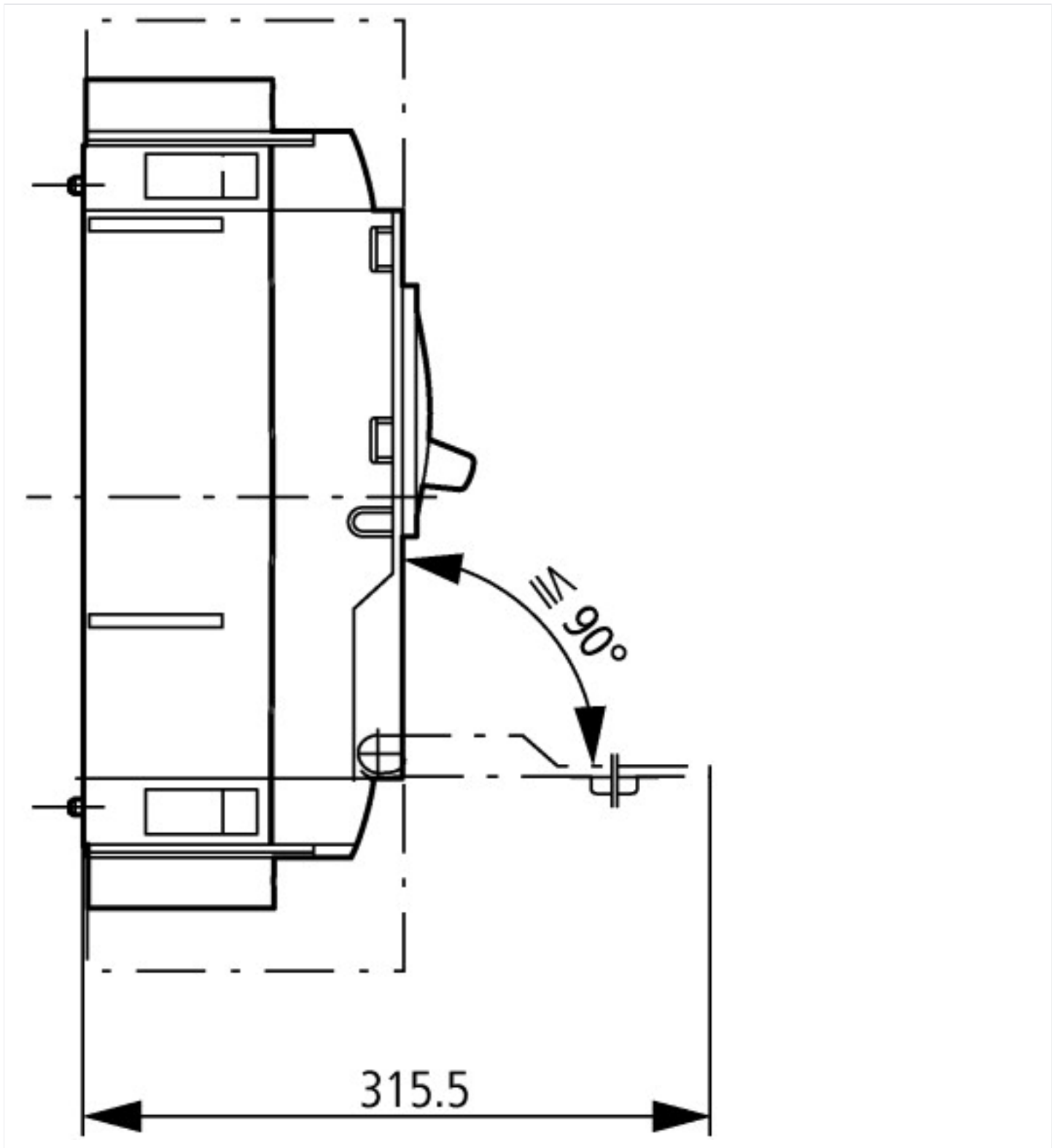
Characteristics



Dimensions



- ① Blow out area, minimum clearance to adjacent parts
- ② Minimum clearance to adjacent parts



Additional product information (links)

Temperature dependency, Derating	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172
CurveSelect characteristics program	http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm
Eaton configurator	http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm
additional technical information for NZM power switch	https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_techinc_de_en.pdf