NGG NGB Circuit Breakers

product GUIDE

SIEMENS

Advantages To Reduce Your Installed Cost

- Compact size saves space and helps reduce overall panel size.

- Interchangeable lugs and nut keepers for customer-supplied connections allow for last minute changes on site.

- UL listed field installable accessories allow for last minute changes on site. Also, inventory can be minimized as these accessories cover two families of Siemens breakers.

- Integral DIN rail or base mounting capability simplifies mounting the breaker without having to add plates or adapters.

- CE/CSA/NOM marked UL breakers let you serve all major markets with one design.

General Information

The Siemens type NGG circuit breaker is a compact, industrial design thermal magnetic breaker with valuable features for the global markets. These features include a design that meets multi-national standards, is suitable for DIN rail or base mounting without the need for adapters, and includes UL listed field installable accessories. The NGG also has an overcenter toggle mechanism that is trip free and uses repulsion contact arm construction. Therefore, should a short circuit or tripping condition occur, the contacts are forced apart and the breaker cannot be held closed by means of the handle.

The NGB circuit breaker includes the same design features as the NGG except the line end of the breaker is configured for panelboard mounting applications and it is without some of the global markings.

Applications:

- With their compact size, the NGG/NGB circuit breakers are well suited for OEM designed equipment in both light commercial and industrial applications.
- The NGG can be independently mounted on DIN rail or held in place by mounting screws.
- The NGB breaker is for panelboard mounted applications.
- These circuit breakers may be used as incoming main and branch breakers in distribution systems.

Operating Conditions:

- The NGG circuit breakers are designed for use in enclosed rooms, in which there are no adverse operating conditions (e.g. dust, corrosive vapors, destructive gases).
- For installation in dusty and damp rooms or outdoors, suitable enclosures must be used.
- The NGG is factory calibrated for 40° C ambient.

125A Frame
Type NGG

- Global rated (UL/CSA/IEC/NOM)
  UL489
  CSA-C22.2 No. 5-02
  IEC 60947-2
  NMX-J-266-ANCE-2002
- HACR, SWD, and HID marked (at applicable ratings)
- Integral DIN Rail or Base Mount without Adapters
- UL Listed Field Installable Accessories
- Removable Lugs
- 25kA @ 480VAC
- Compact Size
  3.0"W x 5.4"H x 2.8"D (1.0" wide per pole)
- 1, 2, 3 Pole Units
- Overcenter toggle and trip free mechanism
- Suitable for Reverse Feed Applications
- Common Trip
- Voltage ratings of 120V, 127V, 240V, 277V, 480V, 600Y/347V AC
  DC rated at 125V, 250V DC
- Meets or Exceeds Federal Specifications W-C-375c
  Classes 10b, 11a, 11b, 12b, 12c, 13a, 13b, 15b

General Information

Ratings and Markings

Type	Current Range (A)	HACR Rated	SWD Marked	HID Marked
1 pole	15 - 125	15 - 125	15 - 20	15 - 50
2 pole	15 - 125	15 - 125	—	15 - 50
3-pole	15 - 125	15 - 125	—	15 - 50

Shipping Weight:

0.9 lbs. / 0.4 kgs.	1 Pole
1.9 lb. / 0.9 kgs.	2 Poles
2.9 lbs. / 1.2 kgs.	3 Poles

Interrupting Ratings (max. RMS symmetrical amperes kA)

		UL489								IEC 60947-2 (Ics = 50% Icu)		
		Volts AC						Volts DC		Volts AC		Volts DC
	Poles	120	240	277	347	480	600Y/347	125	125/250	240	415	125/250
NGG	1	65	—	25	14	—	—	14	—	25	—	—
	2, 3	—	65	—	—	25	14	—	14 ①	65	25	14

		UL489								IEC 60947-2 (Ics = 50% Icu)		
		Volts AC						Volts DC		Volts AC		Volts DC
	Poles	120	240	277	347	480Y/277	600Y/347	125	125/250	240	415	125/250
NGB	1	100	—	25	14	—	—	14	—	25	—	—
	2, 3	—	100	—	—	25	14	—	14 ①	65	25	14

40°C, 50/60Hz

Ordering Information

Type NGG/NGB 1, 2 and 3 Poles

Ampere Rating I_n	NGG Catalog Number (Cable In - Cable Out)	NGB Catalog Number (Panelboard Mounting)
15	NGG __ B015L	NGB __ B015B
20	NGG __ B020L	NGB __ B020B
25	NGG __ B025L	NGB __ B025B
30	NGG __ B030L	NGB __ B030B
35	NGG __ B035L	NGB __ B035B
40	NGG __ B040L	NGB __ B040B
45	NGG __ B045L	NGB __ B045B
50	NGG __ B050L	NGB __ B050B
60	NGG __ B060L	NGB __ B060B
70	NGG __ B070L	NGB __ B070B
80	NGG __ B080L	NGB __ B080B
90	NGG __ B090L	NGB __ B090B
100	NGG __ B100L	NGB __ B100B
110	NGG __ B110L	NGB __ B110B
125	NGG __ B125L	NGB __ B125B
	1 = 1 pole, 2 = 2 pole, 3 = 3 pole; L = Line & Load side lugs ②	1 = 1 pole, 2 = 2 pole, 3 = 3 pole; B = Load side lugs ③

① 2-pole only or two outer poles of 3-pole breaker.
② This "L" indicates Line Side and Load Side lugs are supplied as standard. To order an NGG without lugs, remove the L suffix.
③ This "B" indicates Load Side lugs are supplied as standard. To order an NGB without lugs, remove the B suffix.

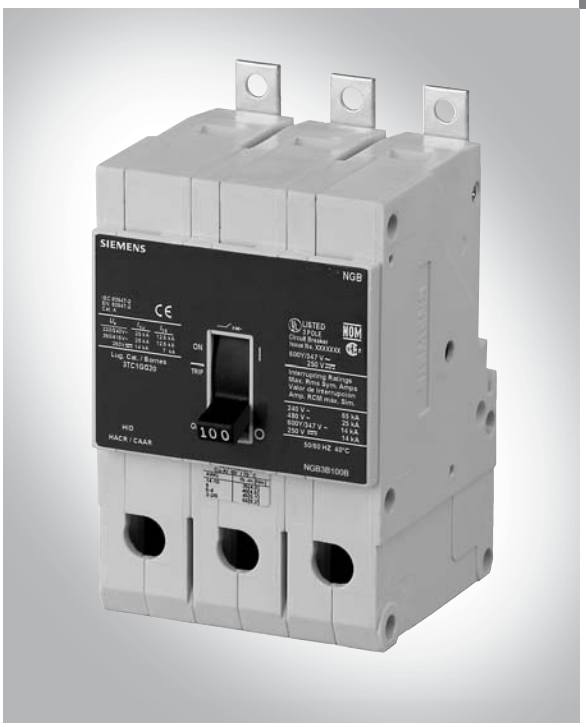
Internal Accessories

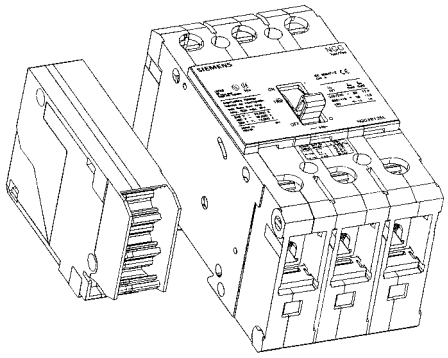
Shunt Trip, Auxiliary Switches, and Alarm Switches are operational devices that are contained within an add-on module for the NGG/NGB circuit breakers. One module can be attached to the left side only of NGG/NGB type circuit breaker. Each module can be installed in the field.

Shunt Trip — A shunt trip is used to trip the breaker remotely. It is operated by providing voltage to the shunt trip coil. The coil in this device is designed to be energized only momentarily, so included is a built-in limit switch which opens the coil circuit after the breaker trips. With the circuit breaker in the tripped position, voltage cannot be applied through the coil circuit due to the open contacts in the limit switch. The operational range of this device is (70 to 110%) of the marked voltage rating.

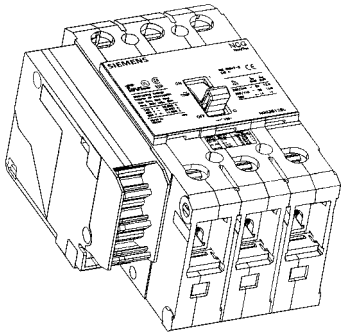
Auxiliary Switches — Auxiliary switches are used for remote indication of breaker contact position (ON or OFF). Each switch consists of "A" (normally open) and "B" (normally closed) contact with a common connection. These devices are typically used for signaling purposes.

Alarm Switch — The alarm switch provides indication of breaker tripping. Alarm contacts operate off of the tripping mechanism of the circuit breaker and only change state when the breaker is tripped. Each alarm switch consists of 1 "A" (normally open) and 1 "B" (normally closed) contact, with a common connection. Sometimes these are also called Bell Alarms.





Mounted left side only, not available on single pole breakers



Available Accessory Combinations

Shunt Trip	Auxiliary Switch	Alarm Contact
1	0	0
0	1	0
0	2	0
1	1	0
0	0	1
0	1	1

Accessories

Shunt Trip — Contains (1) shunt trip device. A combination includes a shunt trip device and an auxiliary switch with 1A-1B contacts.

Control Voltage			Shunt Trip	Shunt Trip and Auxiliary Switch Combination
AC	DC	Current Draw	Catalog Number	Catalog Number
120	—	0.09A	CQDST120	CQDST120AAS
240	—	0.50A	CQDST240	CQDST240AAS
277	—	0.55A	CQDST277	CQDST277AAS
380-415	—		STRGT415 ①	ASTGT415 ①
480	—	0.45A	CQDST480	CQDST480AAS
600	—	0.50A	CQDST600	CQDST600AAS
—	12	1.20A	CQDST12	CQDST12DAS
—	24	0.80A	CQDST24	CQDST24DAS
—	48	0.80A	CQDST48	CQDST48DAS
—	125	0.35A	CQDST125	CQDST125DAS

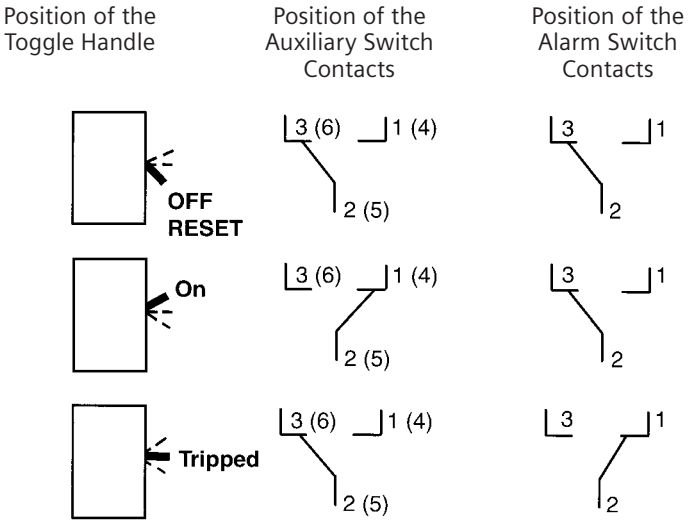
① This is an IEC only rating

Auxiliary Switch — Contains (1) or (2) sets of "A" contacts and "B" contacts.

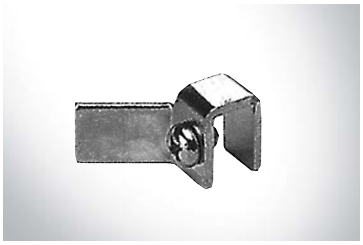
Maximum Control Supply Voltage U_S		Single Auxiliary Switch 1A-1B Contact		Double Auxiliary 2A-2B Switch Contacts	
AC	DC	Catalog Number	Maximum Operational Current	Catalog Number	Maximum Operational Current
240	125	CQDA1	@240V AC — 15A @125V DC — 0.5A	CQDA2	@240V AC — 15A @125V DC — 0.5A

Alarm Switch — Contains (1) set of "A" and "B" contacts.

Maximum Control Supply Voltage U_S		Single Alarm Switch Catalog Number	Auxiliary and Alarm Switch Catalog Number	Maximum Operational Current
AC	DC			
240	125	CQDBA	CQDA1BA	@240V AC — 15A @125V DC — 0.5A



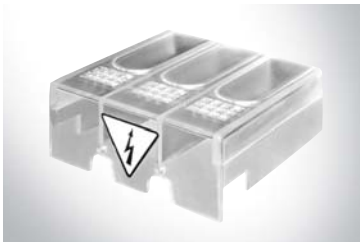
External Accessories



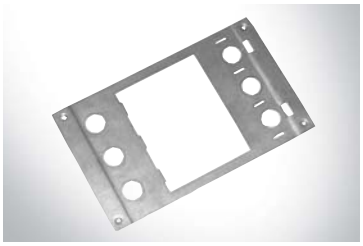
Handle Blocking Device
BQDHBD

Handle Padlock Device
HPLG
(Use BQDPLD in panelboards)

Mounting Screw Kit
MSKG4



Terminal Shield (3-pole)
TSSG3A Line
TSSG3B Load



Face Mounting Plate
FMPG1 1-pole
FMPG2 2-pole
FMPG3 3-pole

Nut Keeper Plate
TNKG3 (Kit of 3)

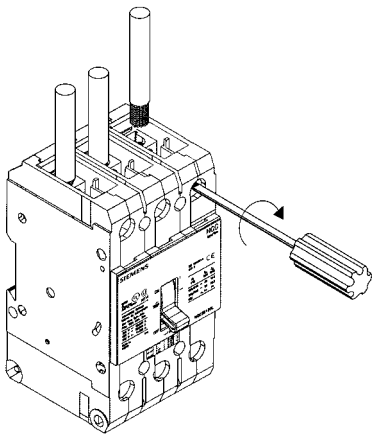
Terminal Connectors

Lug Information for NGG

Breaker Amp Rating (A)	Wire Size (AWG)	Torque Inch-lb. (NM)	Lug Catalog No.
15 – 30	#14 – #10 Al #8 Al	35 (4.0) 40 (4.5)	3TC1Q1 (pkg. of 3)
35 – 125	#8 Al or Cu #3 – 1/0 Cu #6 – #4 Al or Cu #3 – 2/0 Al	40 (4.5) 55 (6.2) 45 (5.1) 55 (6.2)	3TC1GG20 (pkg. of 3)

60/75° C wire

Includes retainer clips



It is possible to remove these terminals of the NGG breaker to allow customer-supplied connections.

Nut Keeper Plates are available instead of lugs for use with customer-supplied connections.

Accessories

Standard Depth Operator Handle (through the door)

Standard	FMHOS
Red and Yellow Handle	FMHOE

NEMA 1 and 12 Variable Depth Operator Kit (handle, shaft, operator)

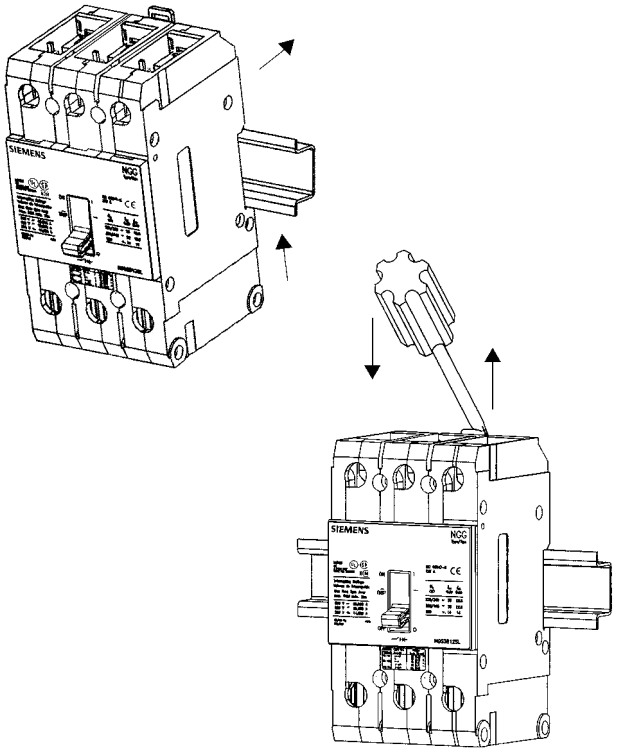
Standard	RHOCQVD
Red and Yellow Handle	RHOCQVDE
NEMA 3R and 4X	CQDOP34 (not suitable for isolation for IEC markets)

Enclosure Type	Mounting	Ampere Rating	Catalog Number
NEMA 1 - Indoor (general duty)	Surface	15 - 125	GG0121SN
NEMA 1 - Indoor (general duty)	Flush	15 - 125	GG0121FN
NEMA 3R - Outdoor (rain, snow)	Surface	15 - 125	GG0123RN
NEMA 12 - Indoor (dust, lint)	Surface	15 - 125	GG01212N

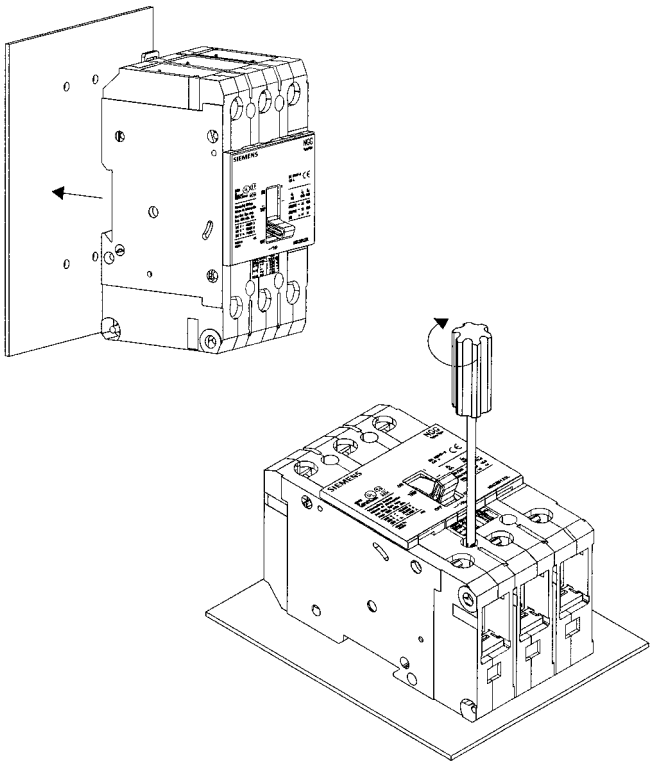
Mounting

The NGG125 series of Siemens circuit breakers can be mounted in several manners.

1) Mounted on 35x7.5mm or 35x15mm DIN rail

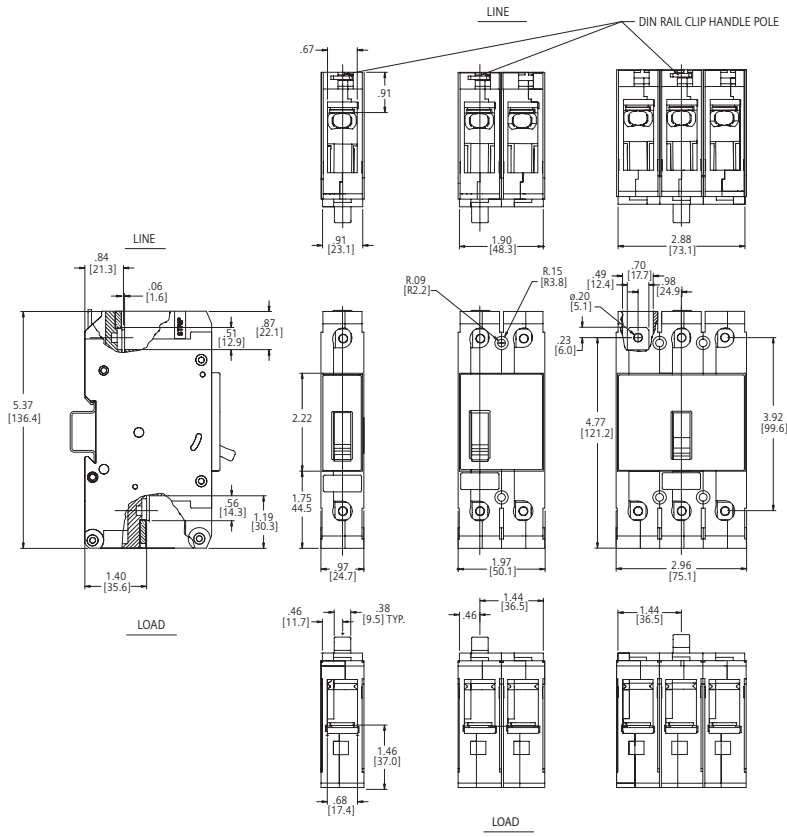


2) Mounted to customer supplied surface using Mounting Screw Kit – MSKG4

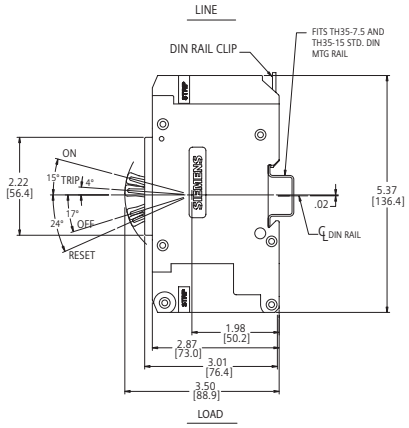


Dimensions

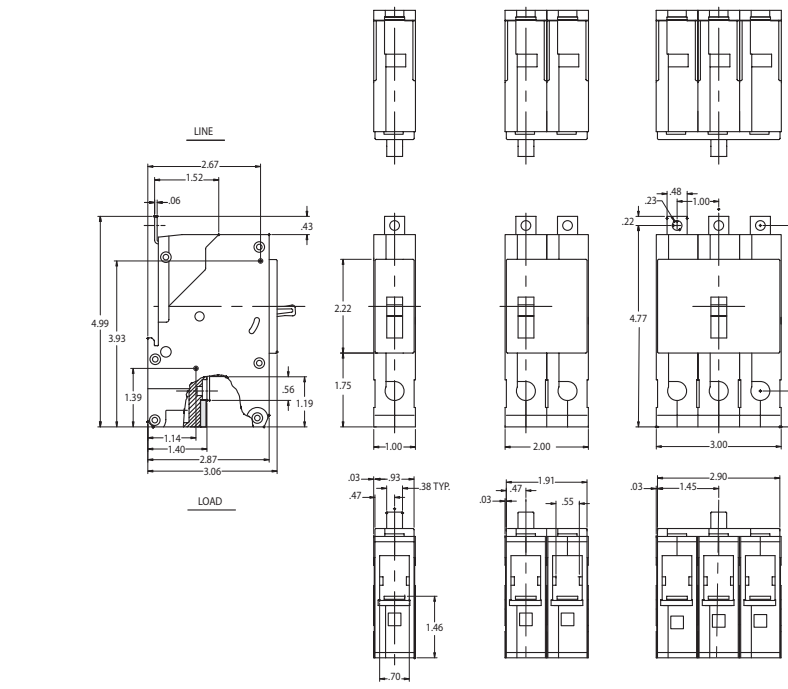
NGG Frame Outline Drawing — 1, 2, 3 Pole



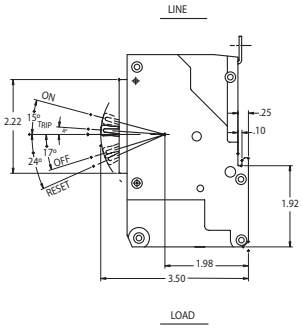
	Width	Height	Depth
1 Pole	0.97 (24.7)	5.37 (136.4)	2.87 (73.0)
2 Pole	1.97 (50.1)		
3 Pole	2.96 (75.1)		



NGB Frame Outline Drawing – 1, 2, 3 Pole

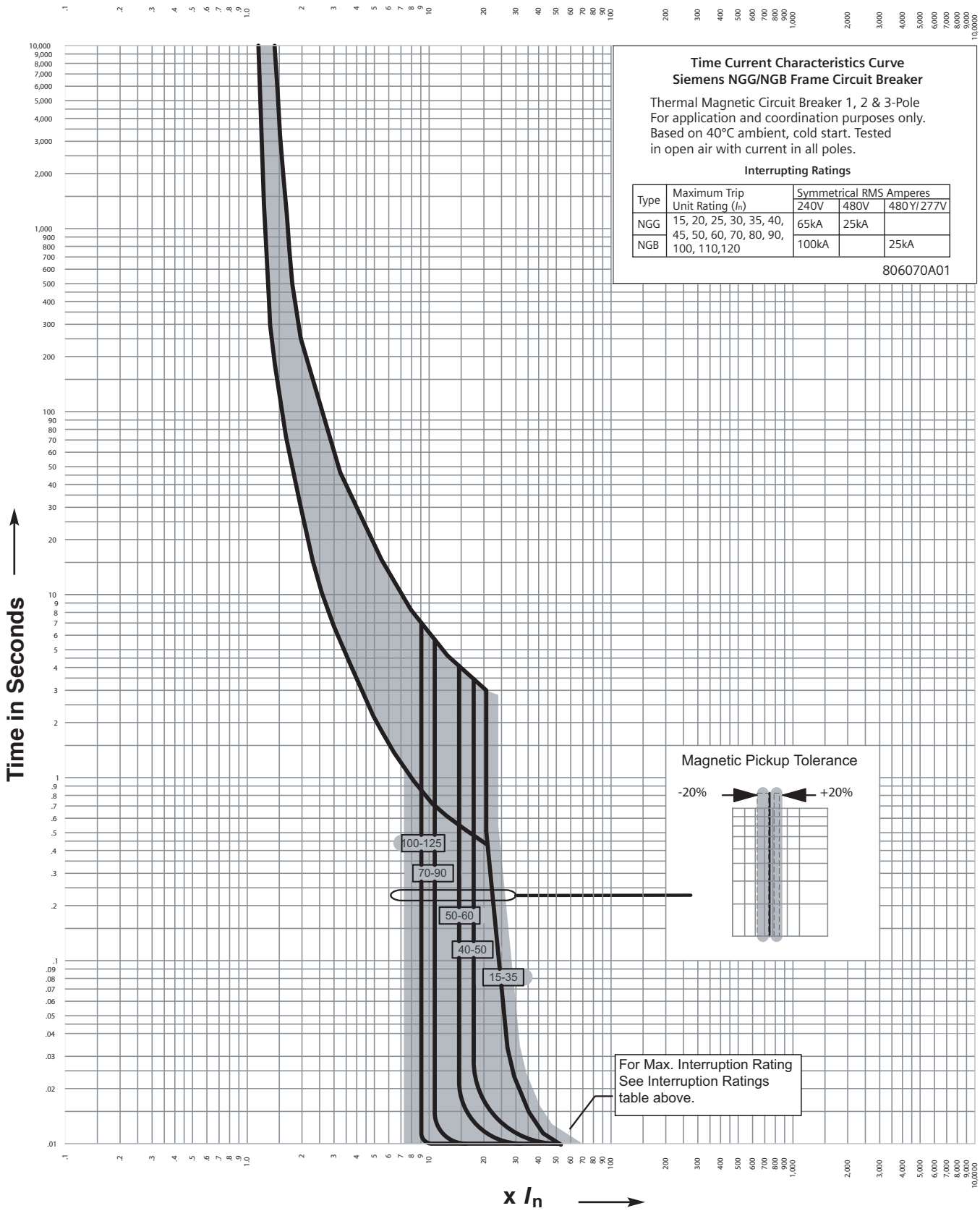


	Width	Height	Depth
1 Pole	0.97 (24.7)	4.99 (126.7)	2.87 (73.0)
2 Pole	1.97 (50.1)		
3 Pole	2.96 (75.1)		



NGG/NGB Time Current Curve – Example

(Contact Siemens for specific curves)



Application Data

General
In the application of circuit breakers, consideration should be given to the following factors:
1. Voltage of circuit.
2. Ampacity of circuit.
3. Frequency of power source.
4. Operating conditions.
5. Fault current available.

Voltage of Circuit – The system voltage should not exceed the listed voltage rating of the circuit breaker, fuse or switch.

Ampacity of Circuit – The listed continuous current rating of the circuit breaker should not exceed the allowable ampacity of the conductors. Where the allowable ampacity of the conductor does not correspond to listed current ratings for fuses or circuit breakers, the next larger rating of fuses or circuit breakers is permitted providing it does not exceed the conductor ampacity by more than 25%. An exception to this rule is permitted for motor circuits or other circuits where high inrush currents may persist for an appreciable time.

Frequency of Power Source – Circuit breakers are calibrated for use on direct current or 48-60-Hertz alternating current. For frequencies above 62-Hertz, some fuses, switches and circuit breakers must be derated. The derating varies with each type and size of protective device. Consult your local representative for specific information.

Operating Conditions – Molded case circuit breakers and fuses are calibrated without any enclosure as specified by the Underwriters' Laboratories, Inc. Sound engineering practice dictates that continuous loads should not exceed 80% of the breaker or fuse current rating for most applications.

Electrical Connections – Molded Case Circuit Breakers are to be connected with 60 or 75°C wire for breakers having a rated ampacity of 125 amperes or less. For circuit breakers having a rated ampacity greater than 125 amperes, only 75°C cable shall be used unless otherwise indicated on the circuit breaker label.

Note: Exceptions to this rule are outlined in Article 110-14-C(1) and C(2) of the 2005 National Electric Code.

Conductors should be derated in accordance with the National Electrical Code for both ambient temperature and continuous loading. Conductors which are loaded continuously should be derated to 80% of their allowable current-carrying capacity except when supplied by an assembly including its over-current device that is listed for continuous operation at 100% of its rating.

When the type of load is unusual, intermittent, or one which involves momentary peak currents such as motor loads, consideration should be given to the heating effect on the protective device over a period of time. The duty cycle of a motor which is started and stopped frequently may require a circuit breaker or fuses with a higher rating than an infrequently started motor.

The presence of excessive dust, moisture, corrosive fumes, or explosive atmosphere requires the use of enclosures suitable for such atmospheres. For application in regions where fungus growth may occur, some circuit breakers should be treated with a fungus and moisture resistant material.

Fault Current Available – The interrupting rating of the circuit breaker should be greater than the available short circuit current at the point of application. The short circuit current from some power sources, such as engine driven generators, is limited, and the protective device characteristics should be selected to clear such faults without delay.

Some systems require a study of protective device characteristics to assure proper protection and coordination for any possible value of fault current. Your representative is available to assist in making coordination studies.

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