UBW Technical Manual

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UBW Technical Manual

General Description 3
Part Number Description 4
Interrupt Capacity Ratings 5
UBW 225 Trip Curves (15 - 225A) 6
UBW 250 Trip Curves 33
UBW 400 Trip Curves 35
UBW 600 Trip Curves 37
UBW 800 Trip Curves 39
UBW 1200 Trip Curves 40
UBW 2500 Trip Curves 42
Let Thru Curves 46
UBW Dimensions 49

General Description

General Circuit Breaker Information

WEG's molded-case circuit breakers are designed to provide circuit protection for low voltage distribution systems. They are described by NEMA as, ". . . a device for closing and interrupting a circuit between separable contacts under both normal and abnormal conditions," and further- more as, ". . . a breaker assembled as an integral unit in a supporting and enclosing housing of insulating material." The NEC® describes them as, "A device designed to open and close a circuit by non-automatic means, and to open the circuit automatically on a predetermined overload of current, without injury to itself when properly applied within its rating."

So designed, WEG circuit breakers protect conductors against overloads and conductors and connected apparatus, such as motors and motor starters, against short circuits.

Circuit Breaker Components and Functions

Being essentially high interrupting capacity switches with repetitive elements, WEG's circuit breakers are comprised of three main functional components. These are:

1. Trip elements (thermal-magnetic or electronic)
2. Operating mechanism
3. Arc extinguishers

1. Trip Elements

The function of the trip element is to trip the operating mechanism in the event of a prolonged overload or short-circuit current. To accomplish this, a thermal- magnetic trip action is provided.

Thermal-Magnetic Breakers

WEG thermal-magnetic breakers are general purpose devices suitable for the majority of breaker applications and are considered the industry standard. Available from 15–800 A, thermal-magnetic breakers provide accurate reliable overload and short- circuit protection for conductors and connected apparatus. Thermal trip action is achieved through the use of a bimetal heated by the load current. On a sustained over- load, the bimetal will deflect, causing the operating mechanism to trip.

Because bimetals are responsive to the heat emitted by the current flow, they allow a long-time delay on light overloads, yet they have a fast response on heavier overloads.

Magnetic trip action is achieved through the use of an electromagnet in series with the load current. This provides an instantaneous tripping action when the current reaches a predetermined value. Front-adjustable magnetic trip elements are supplied as standard on 250 A frame circuit breakers and above 225 are fixed thermal and magnetic

Electronic RMS Trip Breakers

WEG electronic trip breakers are generally applied for applications where high levels of system coordination are called for. Available from 500–2500 A, today's electronic trip breakers can provide superior protection and coordination as well as additional protection features. Both the overload trip action and the short-circuit trip action of breakers with Digitrip electronic trip units are achieved by the use of current transformers and solid-state circuitry that monitors the current and initiates tripping through a flux shunt trip when an overload or a short circuit is present. All multiple-pole circuit breakers have trip elements in each pole and a common trip bar. An abnormal circuit condition in any one pole will cause all poles to open simultaneously.

Electronic RMS trip breakers can include trip features such as:

- Adjustable long-time pickup
- Adjustable short-time pickup
- Adjustable long delay time
- Adjustable short delay time
- Adjustable instantaneous pickup

Trip unit adjustments are made by setting switches on the front of the trip unit or by programming the trip unit electronically. All electronic RMS trip breakers are equipped with a manual push-to-trip mechanism.

2. Operating Mechanism

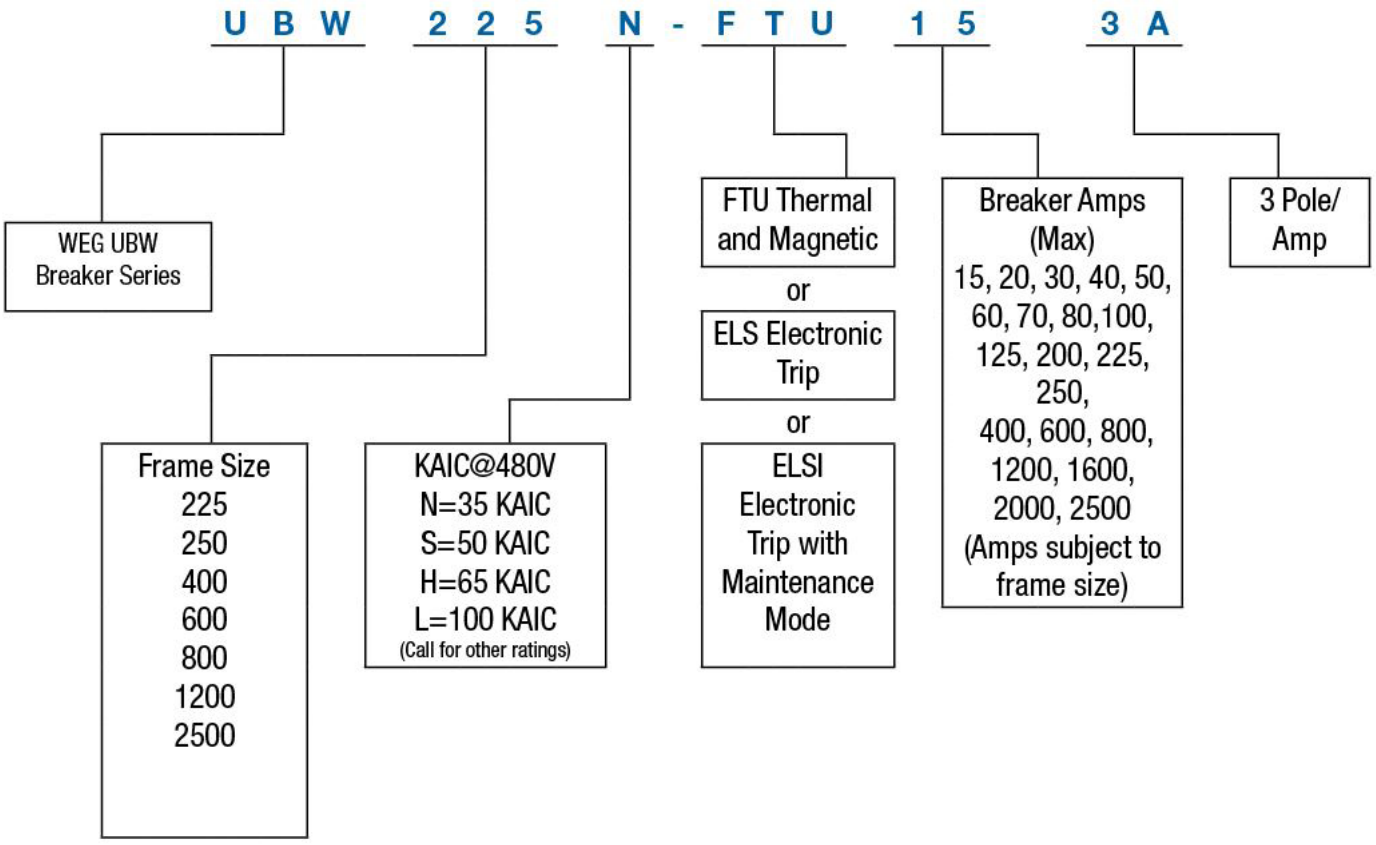
The function of the operating mechanism is to provide a means of opening and closing the breaker contacts. All mechanisms are of the quick-make, quick-break type and are "trip free." "Trip free" mechanisms are designed so that the contacts cannot be held closed against an abnormal circuit condition and are sometimes referred to as an "overcenter toggle mechanism." In addition to indicating whether the breaker is "on" or "off," the operating mechanism handle indicates when the breaker is "tripped" by moving to a position midway between the extremes. This distinct trip point is particularly advantageous where breakers are grouped, as in panelboard applications, because it clearly indicates the faulty circuit. The operating mechanism contains a positive on feature. In the normal switching operation, the handle of the circuit breaker will not be capable of being left readily at or near the off position when the main contacts are closed.

3. Arc Extinguishers

The function of the DE-ION® arc extinguisher is to confine, divide
extinguish the arc drawn between opening breaker contacts. It consists of specially shaped steel grids isolated from each other and supported by an insulating housing. When the contacts are opened, the arc drawn induces a magnetic field in the grids, which in turn draws the arc from the contacts and into the grids. The arc is thus split into a series of smaller arcs and the heat generated is quickly dissipated through the metal. These two actions result in a rapid removal of ions from the arc, which hastens dielectric build- up between the contacts and results in rapid extinction of the arc.

Description	UBW Breakers Frames 225 to 2500
Select trip	Selective trip over a smaller range of fault currents within the interrupting rating (low short-time ratings). Typically 10–13 times the frame size
Operator type	Types of operators: mechanically operated over-center toggle or motor operator
Closing speed	Greater than 5-cycle closing for electrically operated devices
Mounting	Typically fixed-mounted but large frame sizes may be available in drawout construction
Interrupting rating	Interrupting duty at 480 Vac: 22–100 kA
Current limiting	Current limiting available with and without fuses up to 200 kA
Relative cost	Low
Available frame sizes	Large number of frame sizes available. Typical 15–2500 A
Maintenance	Very limited maintenance possible on larger frame sizes
Enclosure types	Used in enclosures, panelboards, switchboards, MCCs and control panels
Series ratings	Available in series ratings
Enclosed rating	80% continuous-current rated
Standards	NEMA AB1/AB3 UL 489

UBW Part Number Sequence

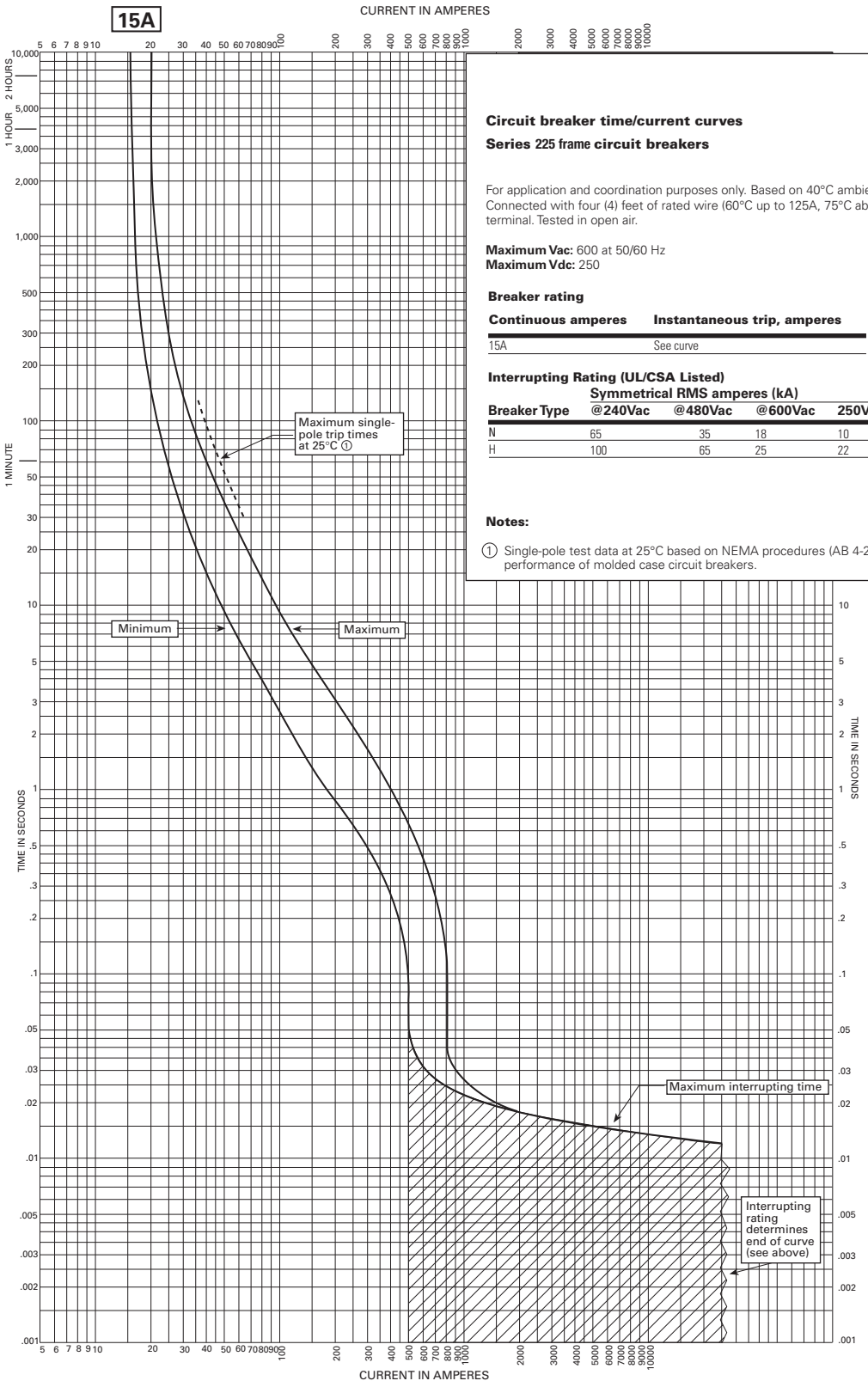


**If ordering with factory installed options replace 3A with alpha numeric option code sequence*

Interupting Capicity Ratings

225 Frame					
Type	Poles	240ac	480ac	600ac	250dc
N	3	65K	35K	N/A	10K
H	3	100K	65K	N/A	22K
L	3	200K	100K	N/A	22K
250 Frame					
Type	Poles	240ac	480ac	600ac	250dc
N	3	65K	35K	18K	10K
H	3	100K	65K	25K	22K
L	3	200K	100K	N/A	22K
400 Frame					
Type	Poles	240ac	480ac	600ac	250dc
N	3	65K	35K	18K	10K
H	3	100K	65K	35K	22K
L	3	200K	100K	65K	22K
600 Frame					
Type	Poles	240ac	480ac	600ac	250dc
N	3	65K	35K	25K	22K
H	3	100K	65K	35K	25K
L	3	200K	100K	50K	30K
800 Frame					
Type	Poles	240ac	480ac	600ac	250dc
S	3	65K	50K	25K	22K
H	3	100K	65K	35K	25
1200 Frame					
Type	Poles	240ac	480ac	600ac	DC Rated
S	3	85K	50K	25K	NO
H	3	100K	65K	35K	NO
L	3	N/A	100K	65K	NO
2500 Frame					
Type	Poles	240ac	480ac	600ac	DC Rated
H	3	125K	65K	50K	NO
L	3	200	100K	65K	NO

UBW Time Current Curves
225N/H



Circuit breaker time/current curves

Series 225 frame circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
15A	See curve

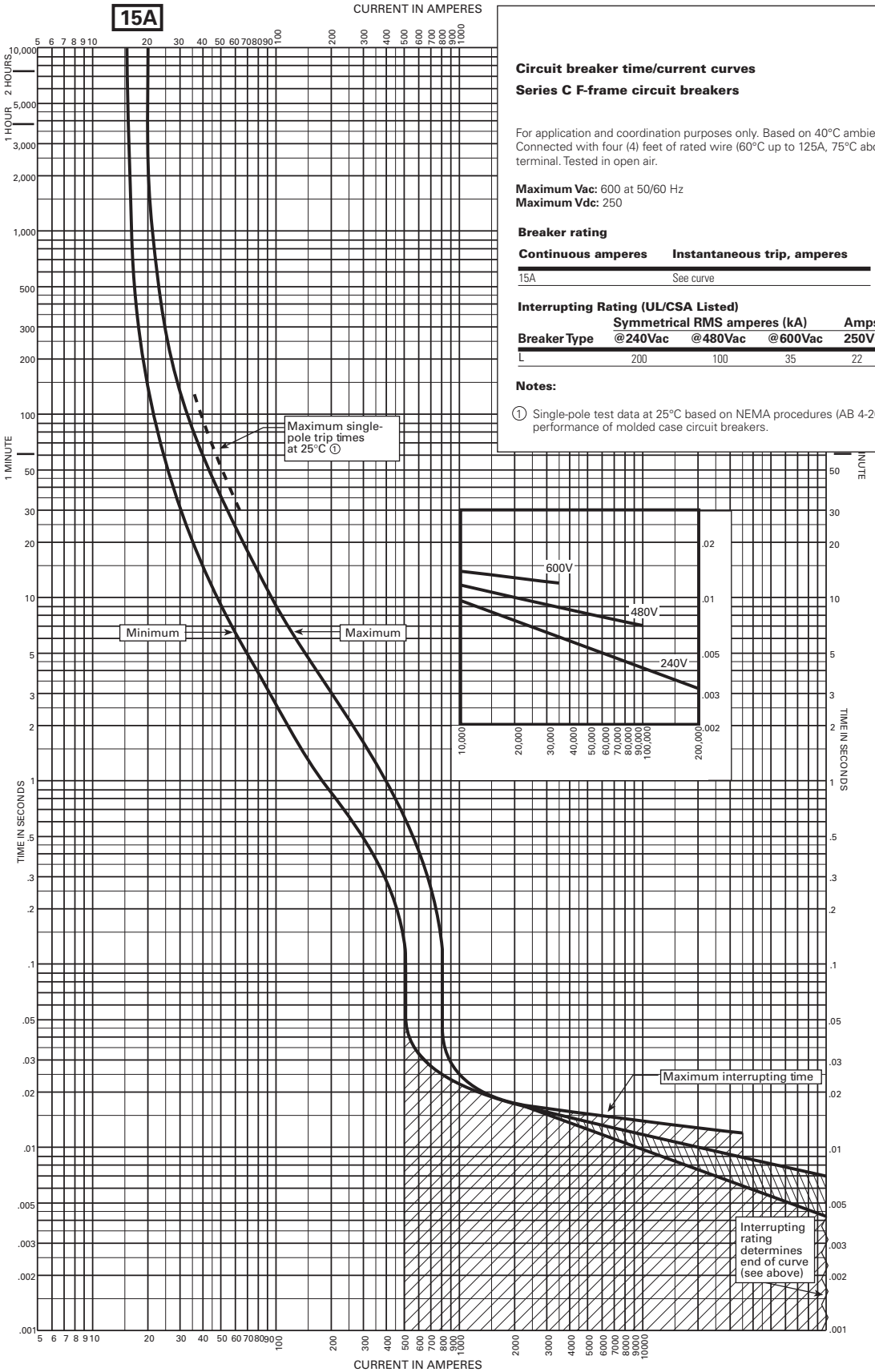
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves
225 L



Circuit breaker time/current curves
Series C F-frame circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
15A	See curve

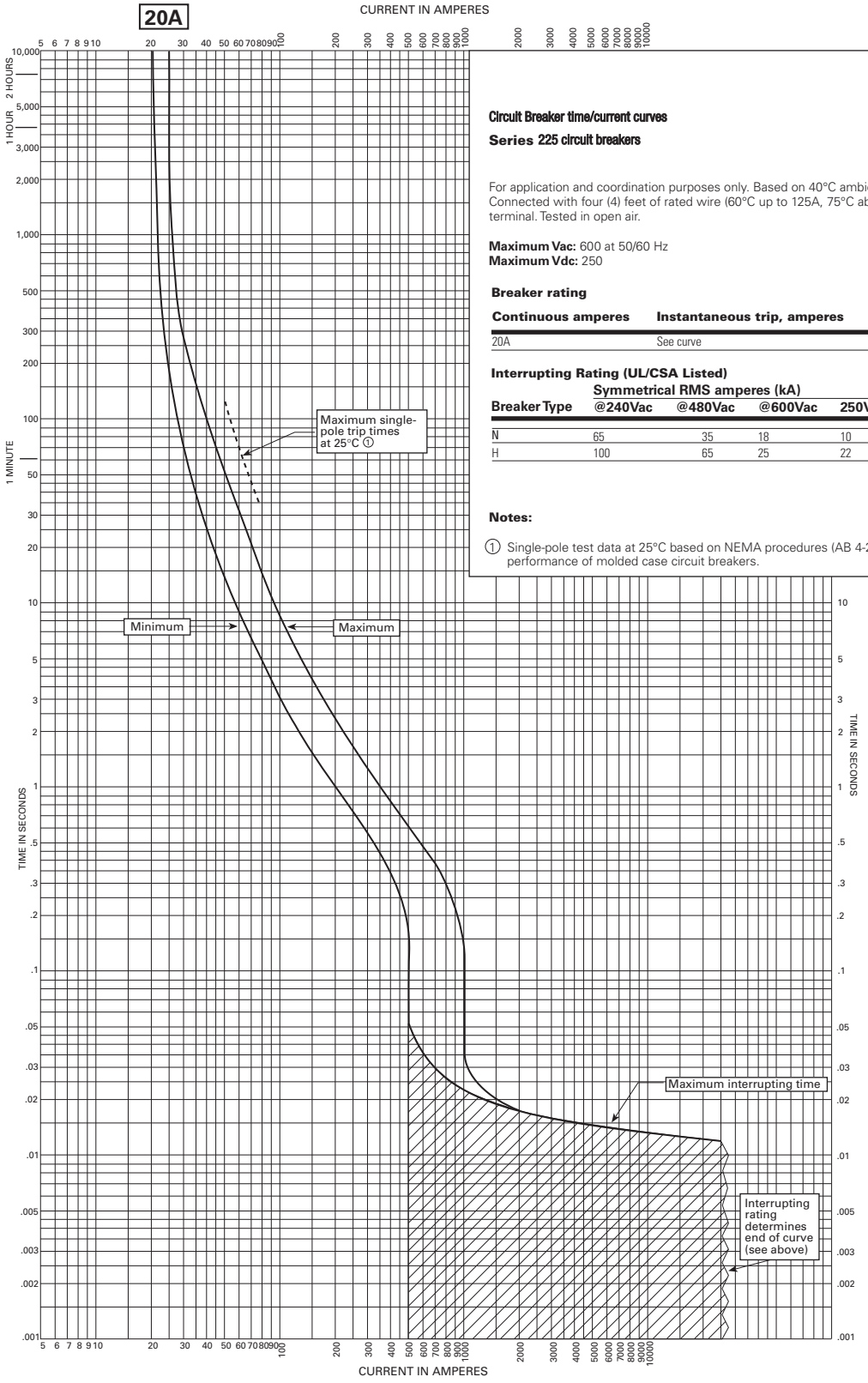
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves
225N/H



Circuit Breaker time/current curves

Series 225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
20A	See curve

Interrupting Rating (UL/CSA Listed)

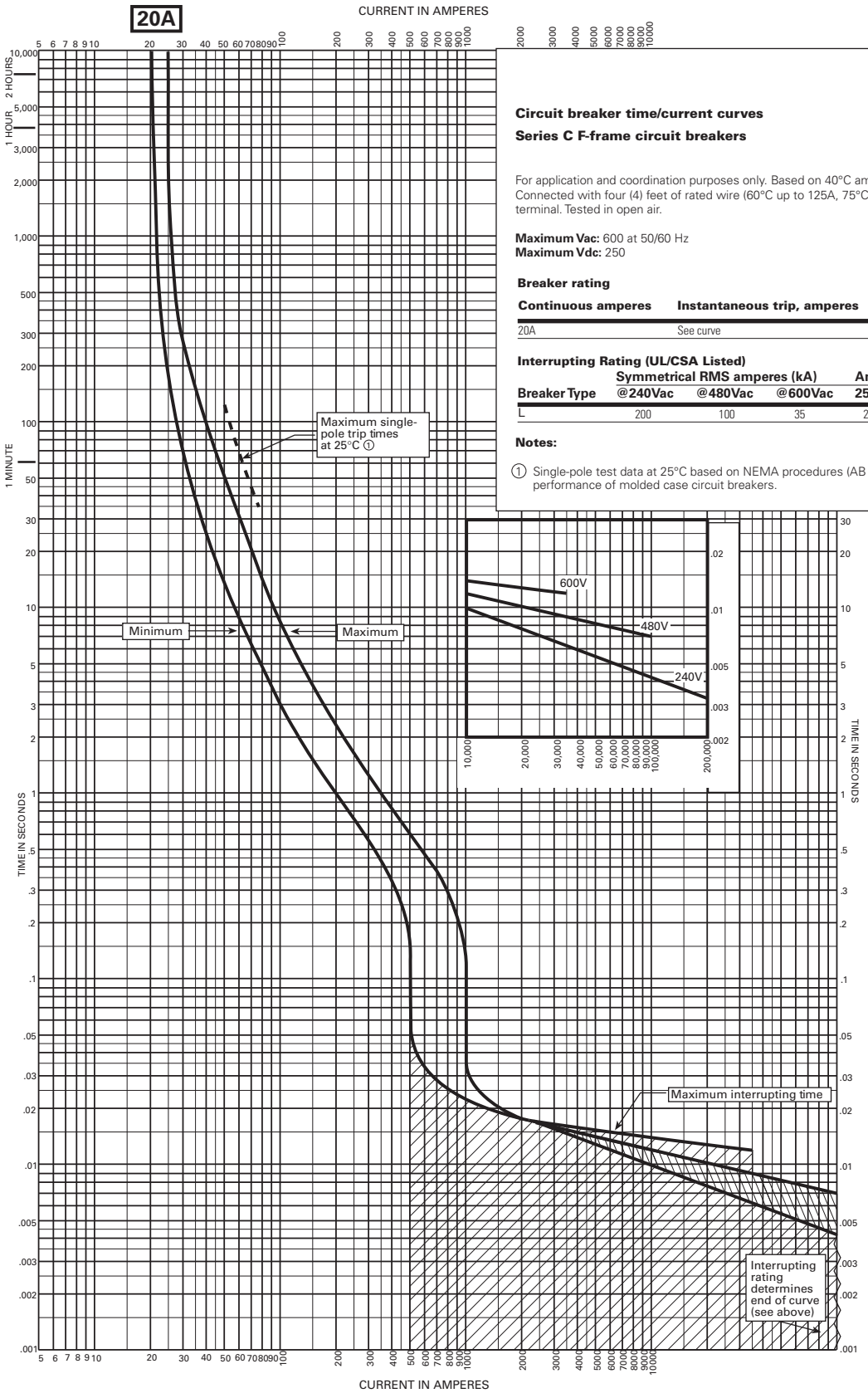
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves

225 L



Circuit breaker time/current curves
Series C F-frame circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
20A	See curve

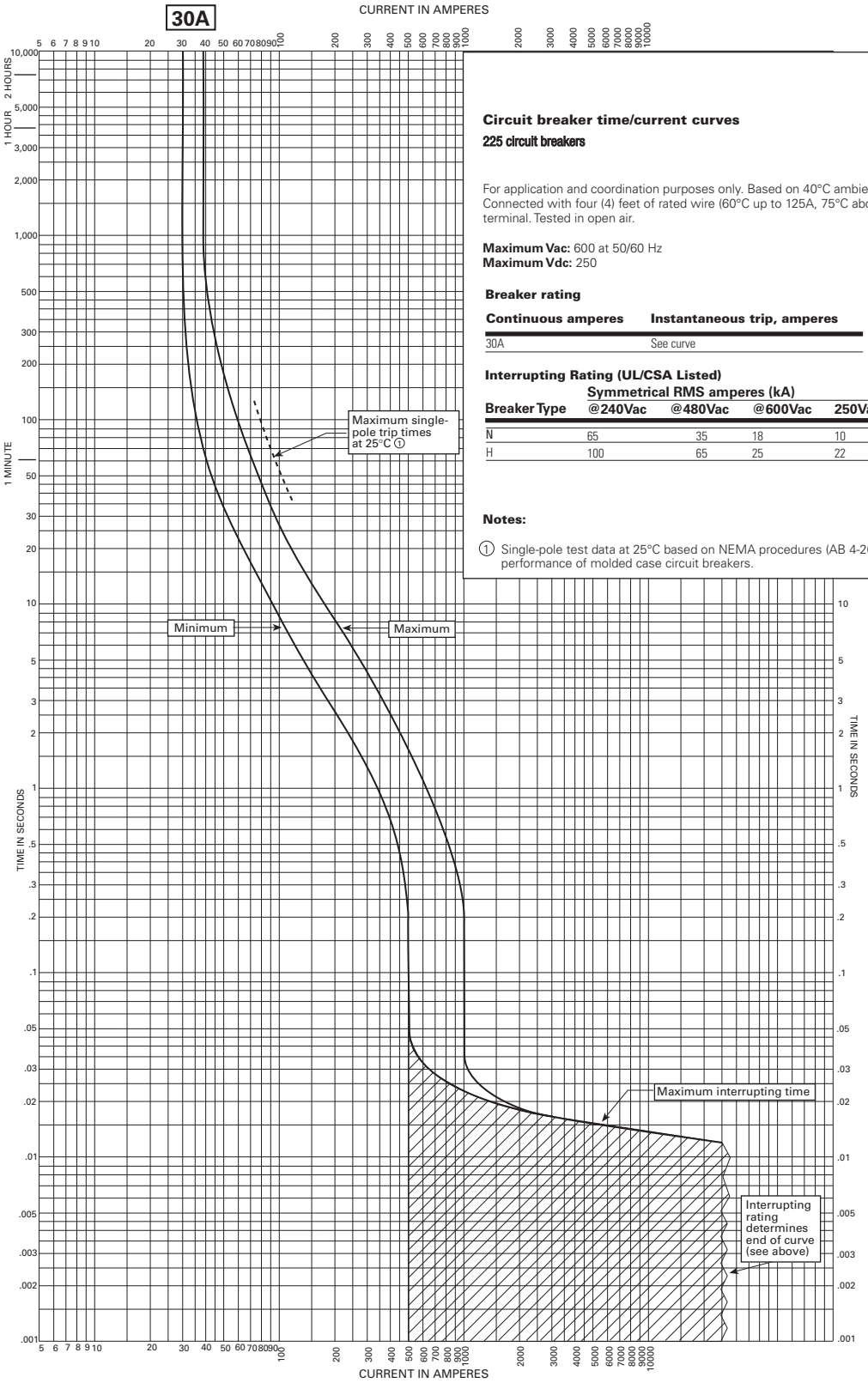
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves
225 N., H.



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
30A	See curve

Interrupting Rating (UL/CSA Listed)

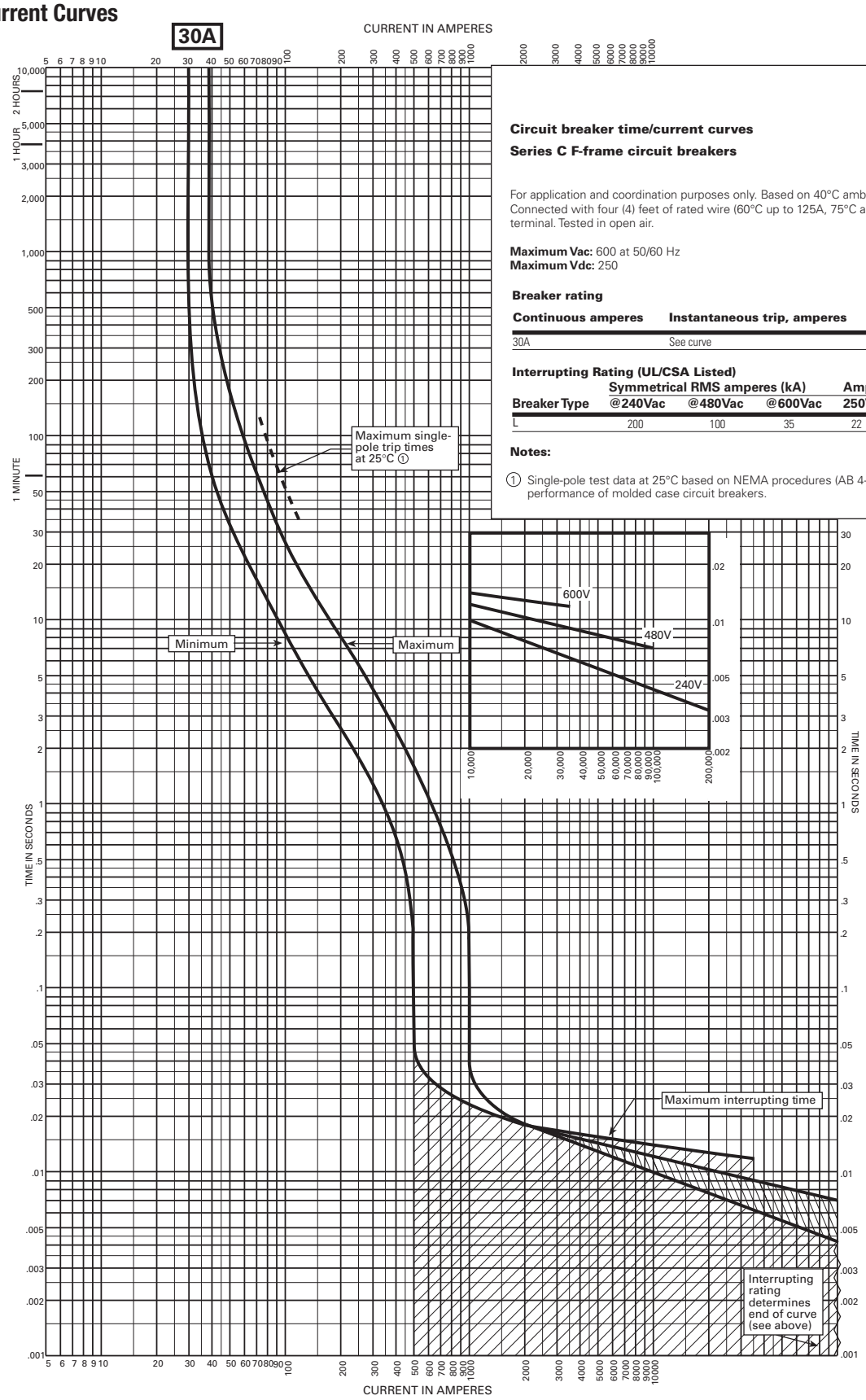
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves

225 L



Circuit breaker time/current curves
Series C F-frame circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
30A	See curve

Interrupting Rating (UL/CSA Listed)

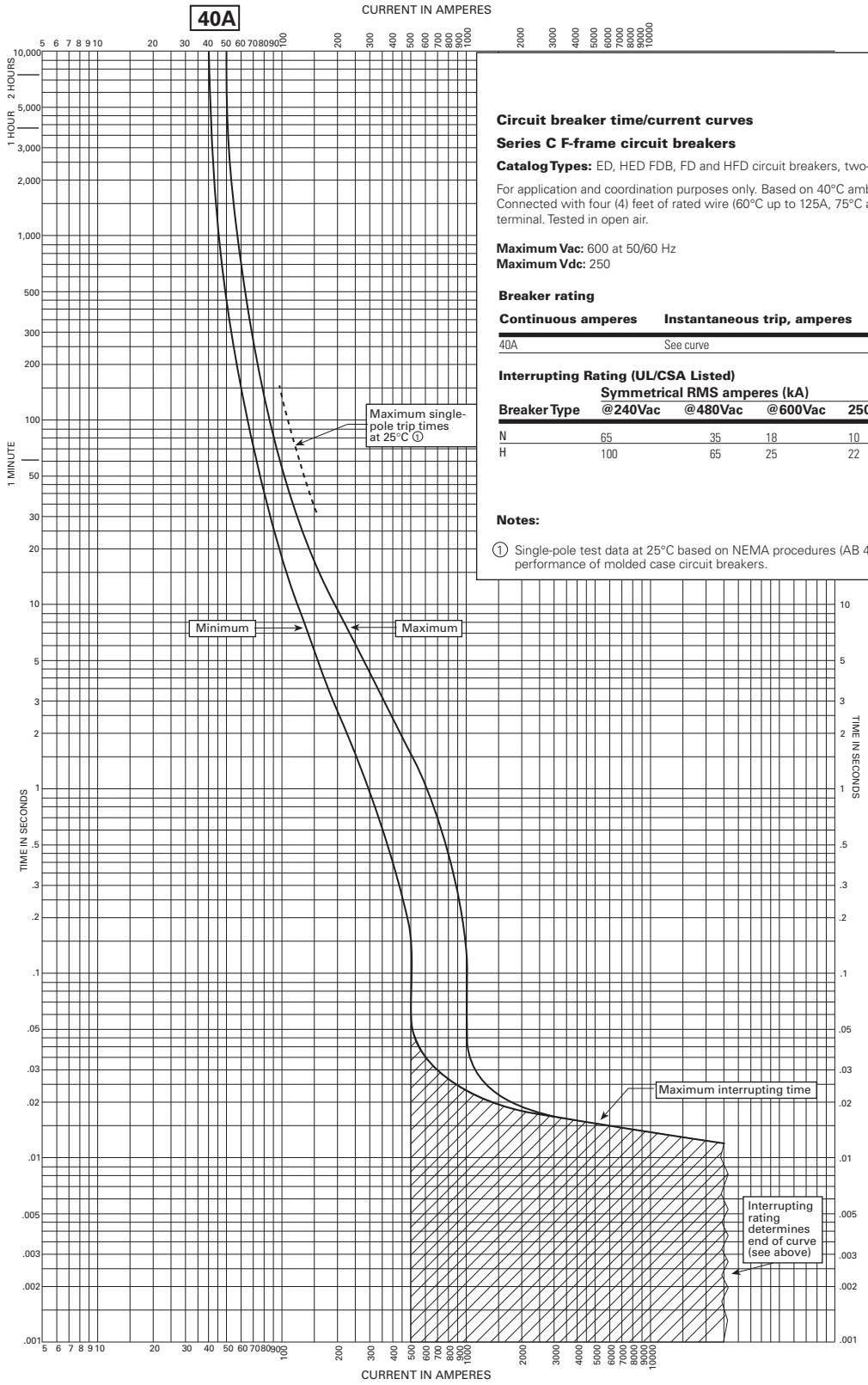
	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves

225 N/H



Circuit breaker time/current curves

Series C F-frame circuit breakers

Catalog Types: ED, HED FDB, FD and HFD circuit breakers, two-, three- and four-pole.

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
40A	See curve

Interrupting Rating (UL/CSA Listed)

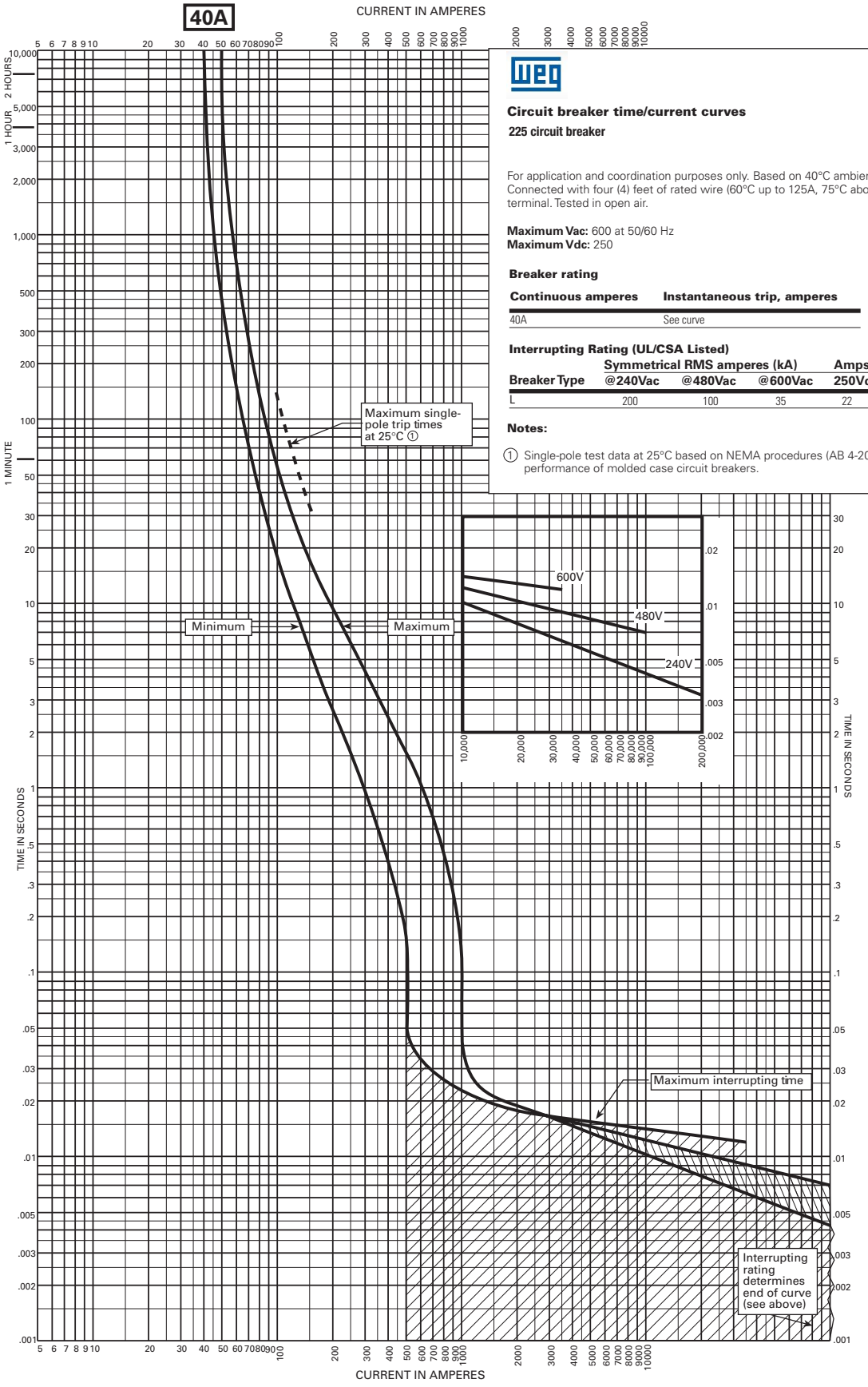
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves

225 L



Circuit breaker time/current curves

225 circuit breaker

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
40A	See curve

Interrupting Rating (UL/CSA Listed)

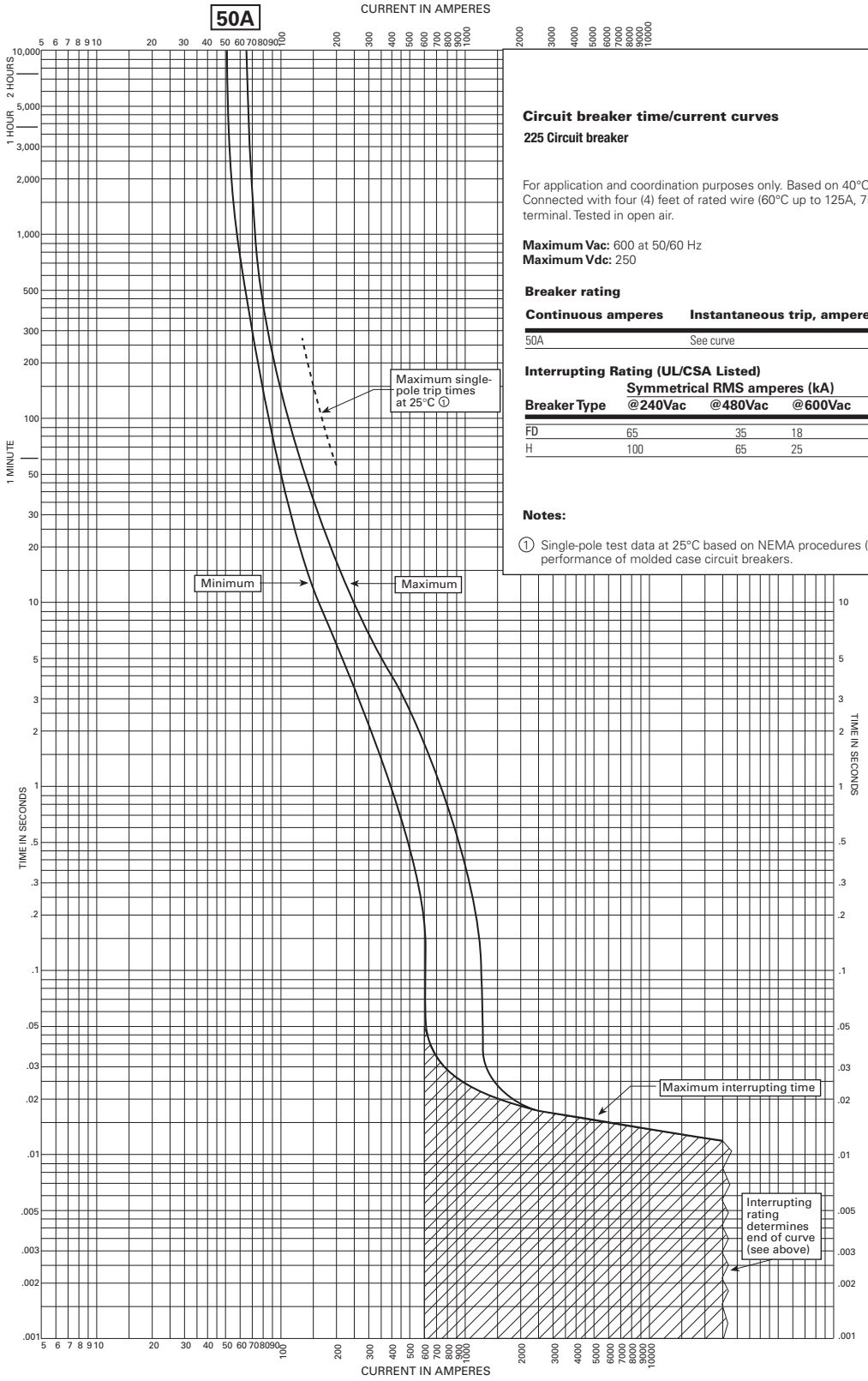
	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves

225 N., H.



Circuit breaker time/current curves

225 Circuit breaker

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
50A	See curve

Interrupting Rating (UL/CSA Listed)

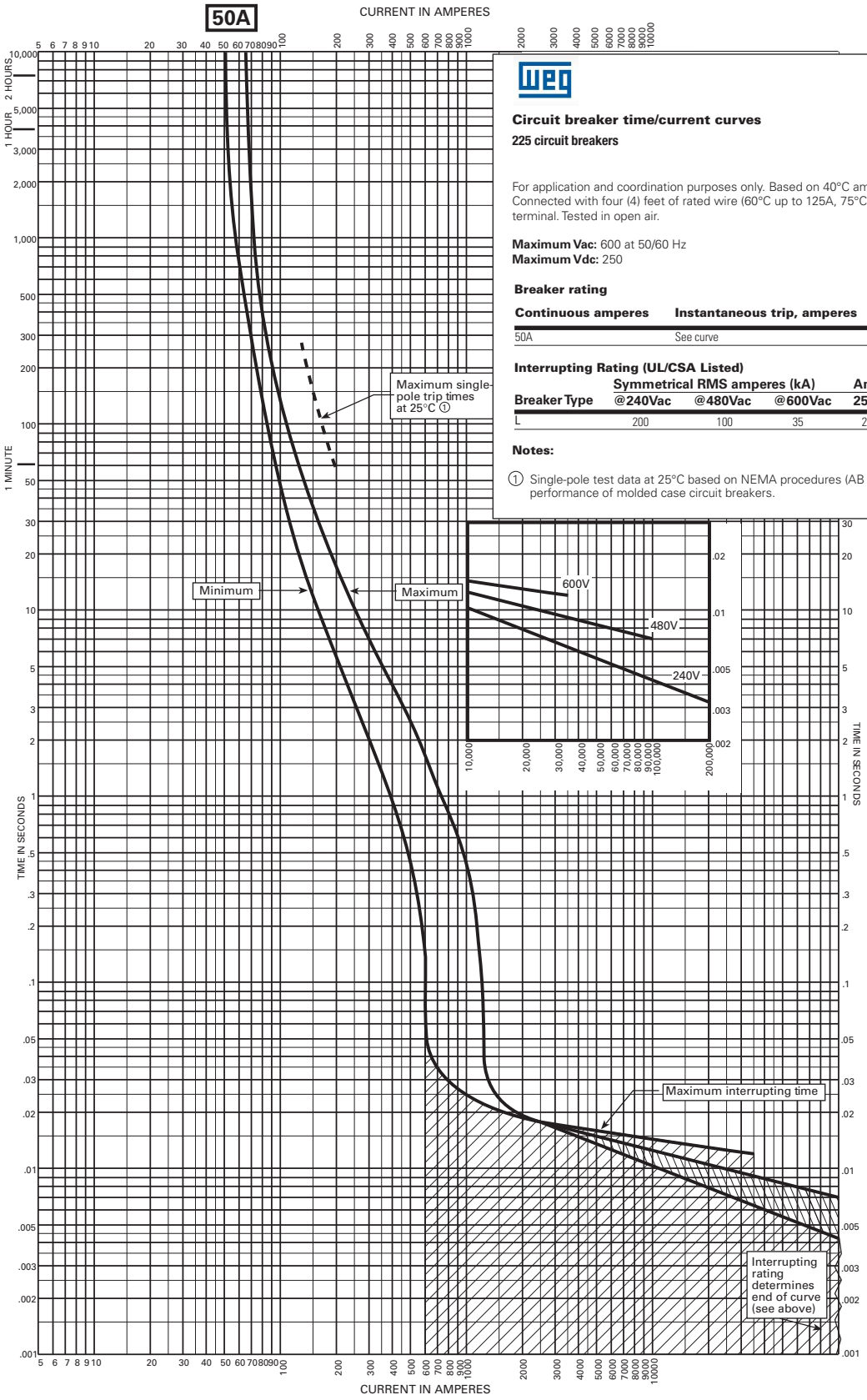
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
FD	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves

225L



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
50A	See curve

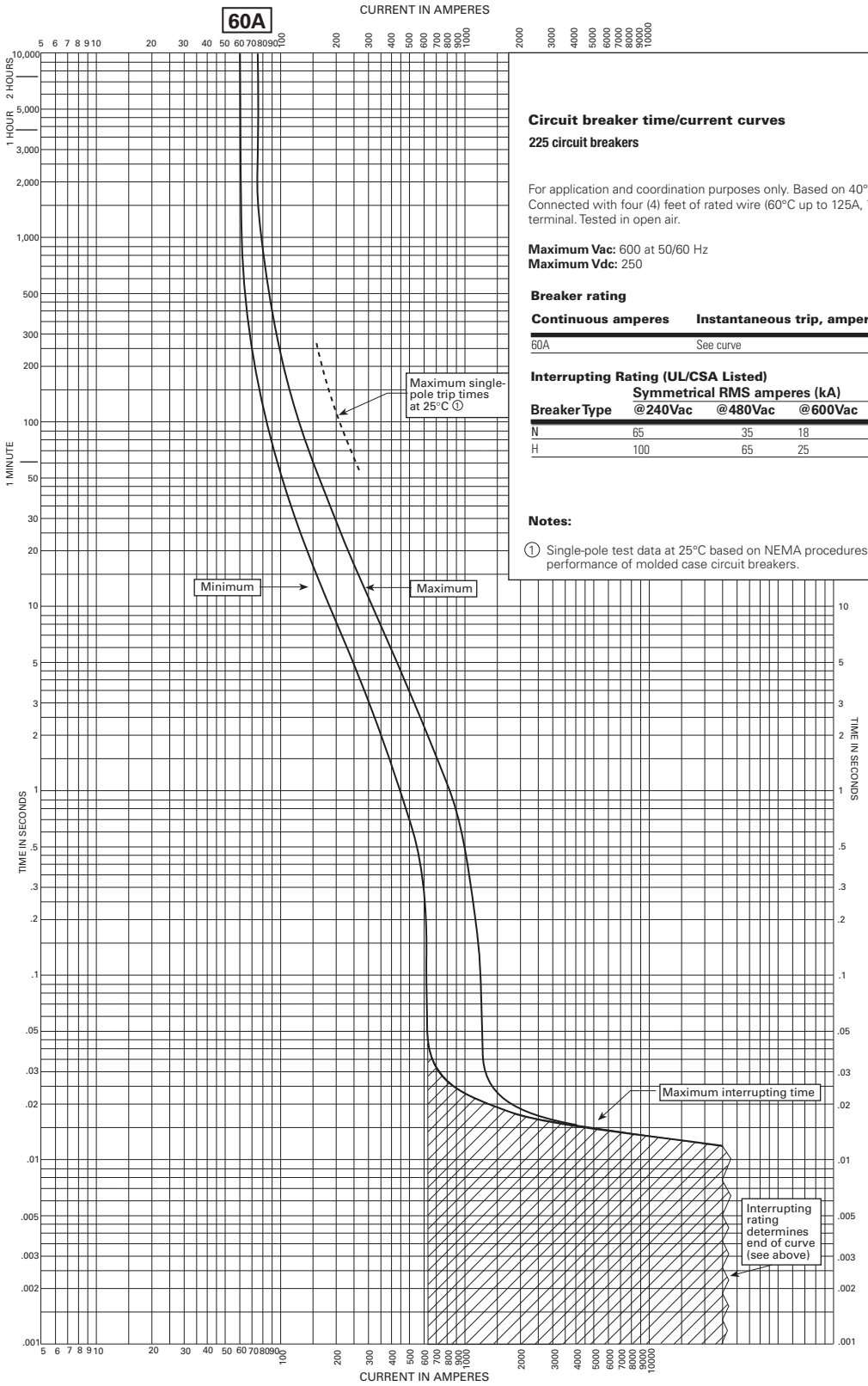
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves
225 N., H.



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
60A	See curve

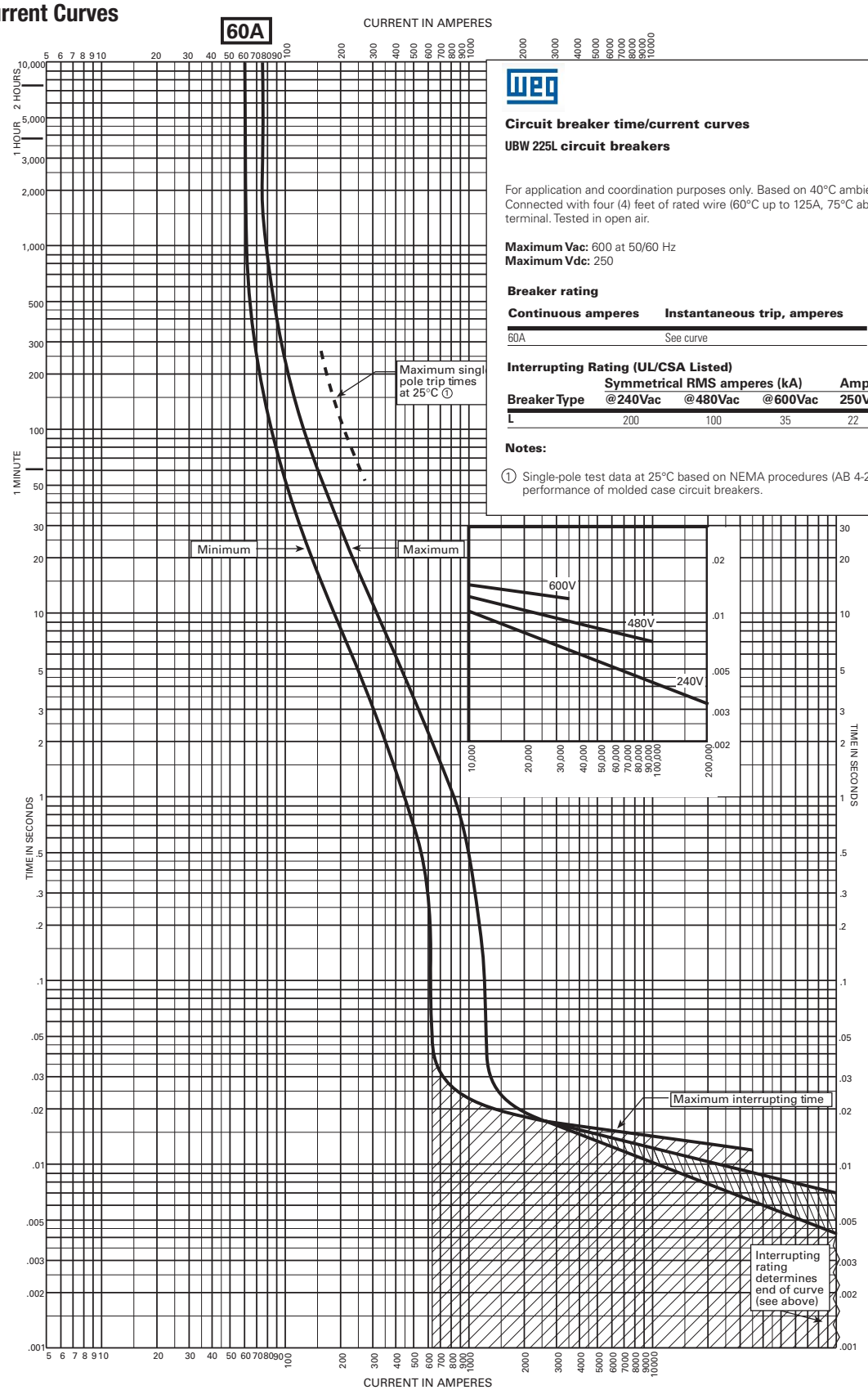
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves
225L



Circuit breaker time/current curves

UBW 225L circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
60A	See curve

Interrupting Rating (UL/CSA Listed)

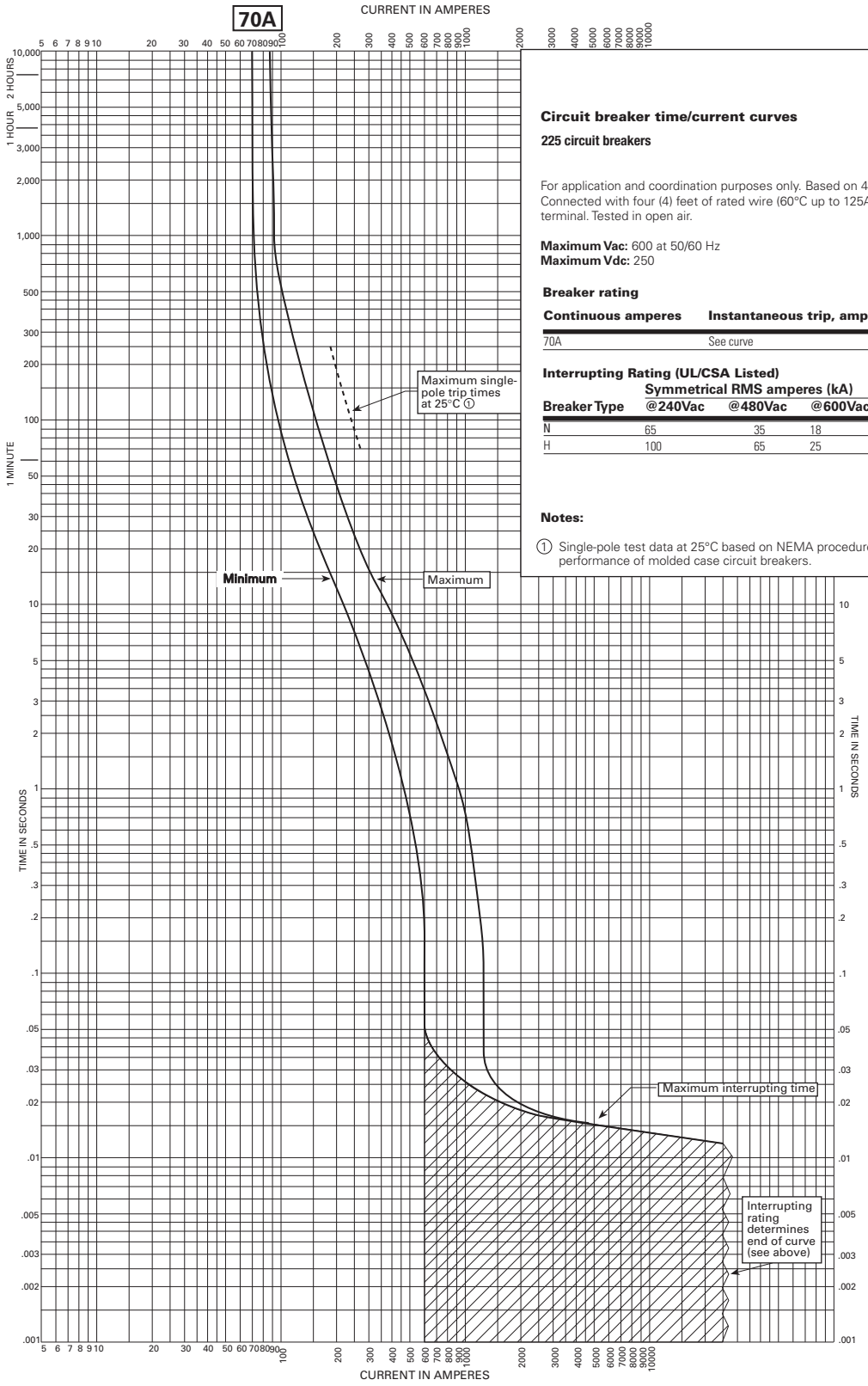
	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves

225 N., H.



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
70A	See curve

Interrupting Rating (UL/CSA Listed)

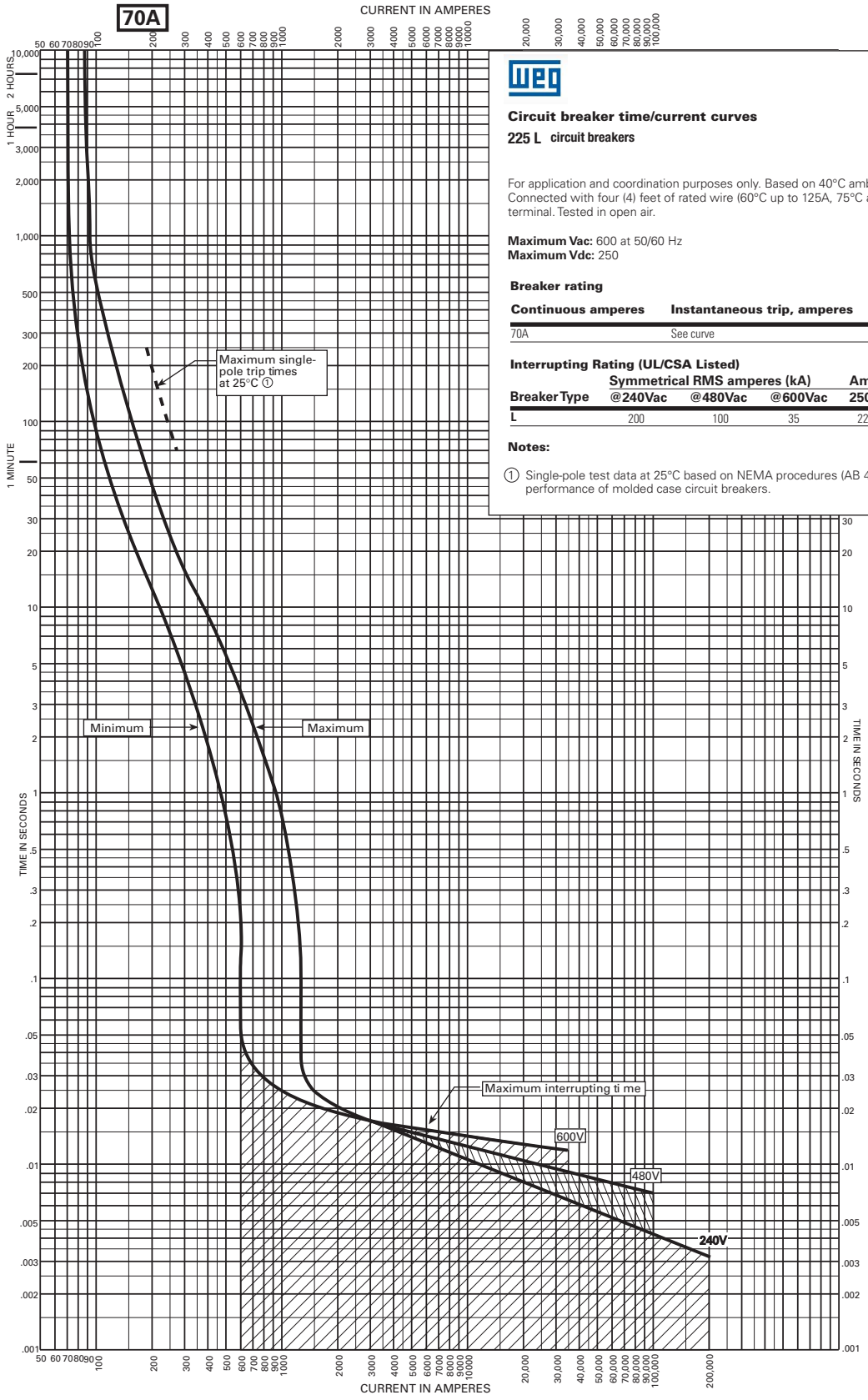
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves

225L



Circuit breaker time/current curves

225 L circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
70A	See curve

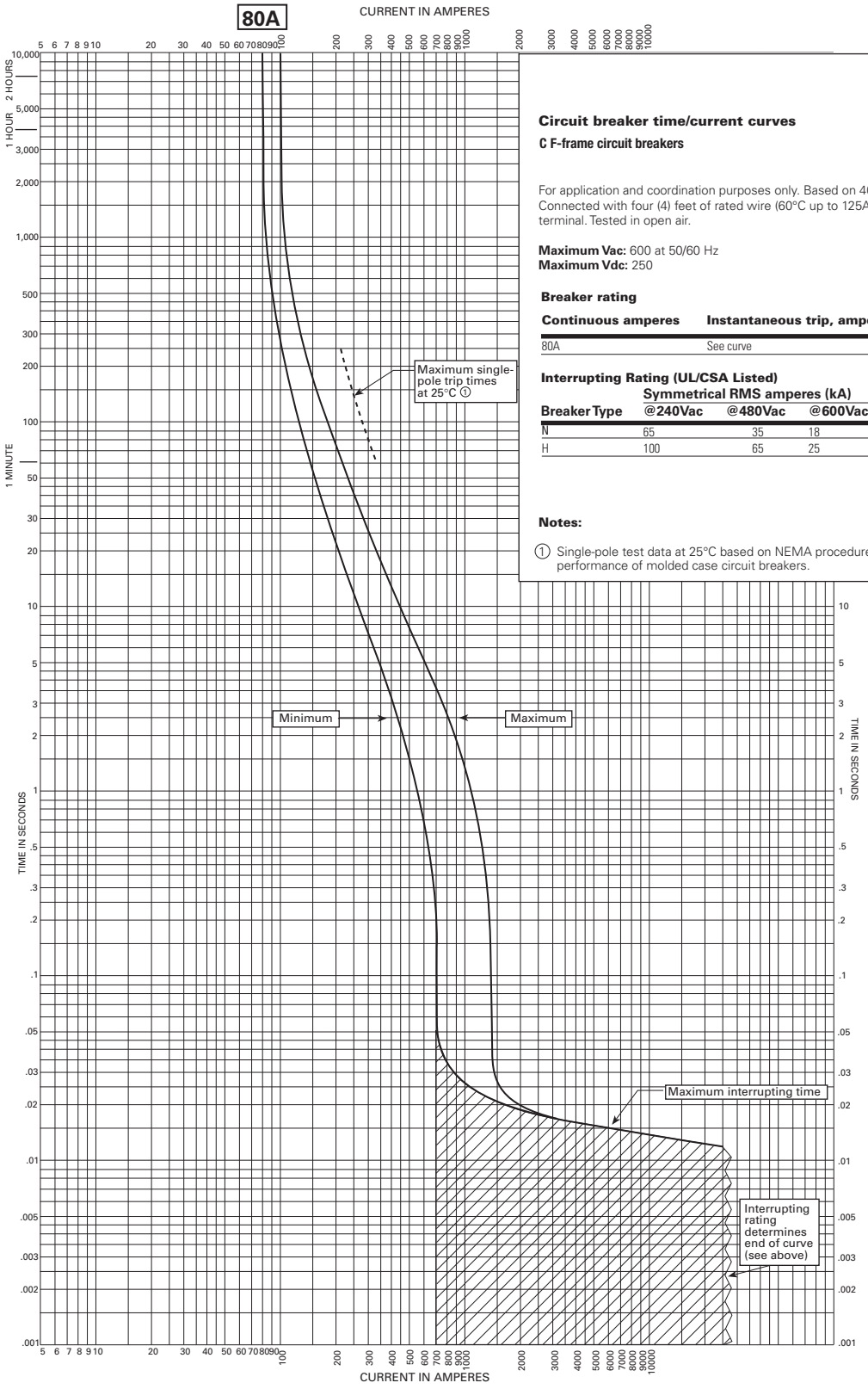
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves
225 N., H.



Circuit breaker time/current curves

C F-frame circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
80A	See curve

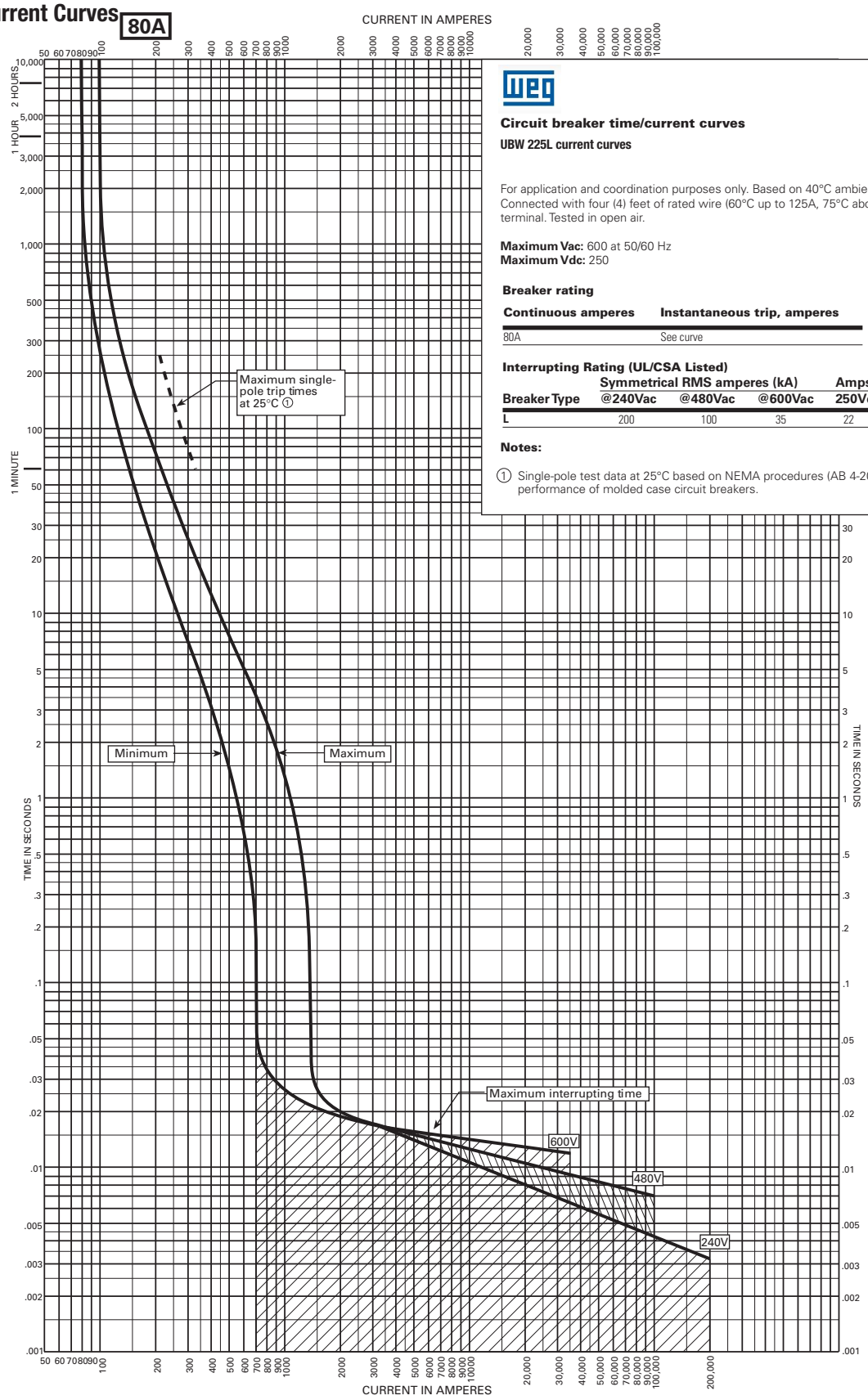
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves
225L



Circuit breaker time/current curves

UBW 225L current curves

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
80A	See curve

Interrupting Rating (UL/CSA Listed)

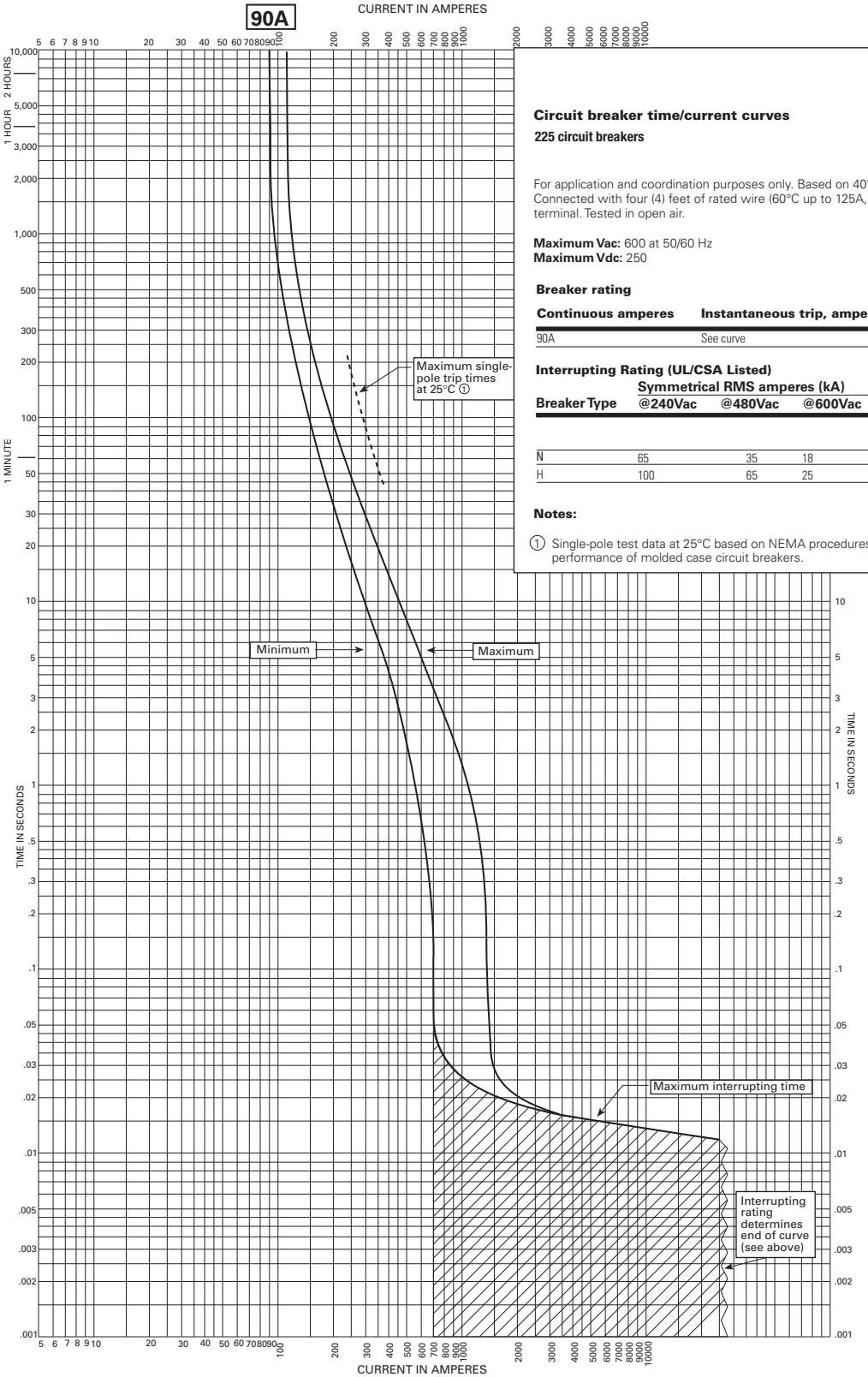
	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves

225 N., H.



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
90A	See curve

Interrupting Rating (UL/CSA Listed)

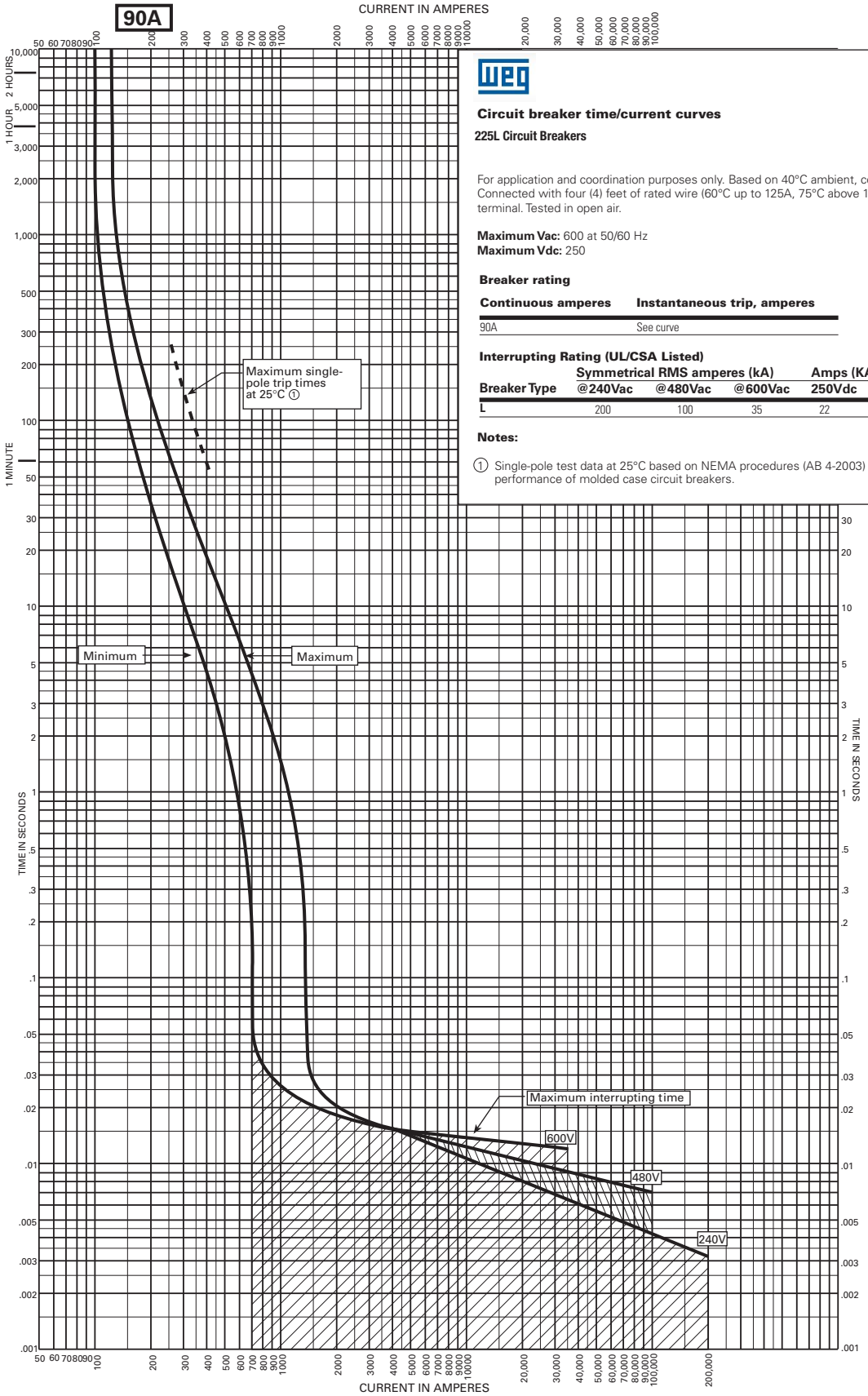
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves

225L



Circuit breaker time/current curves

225L Circuit Breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
90A	See curve

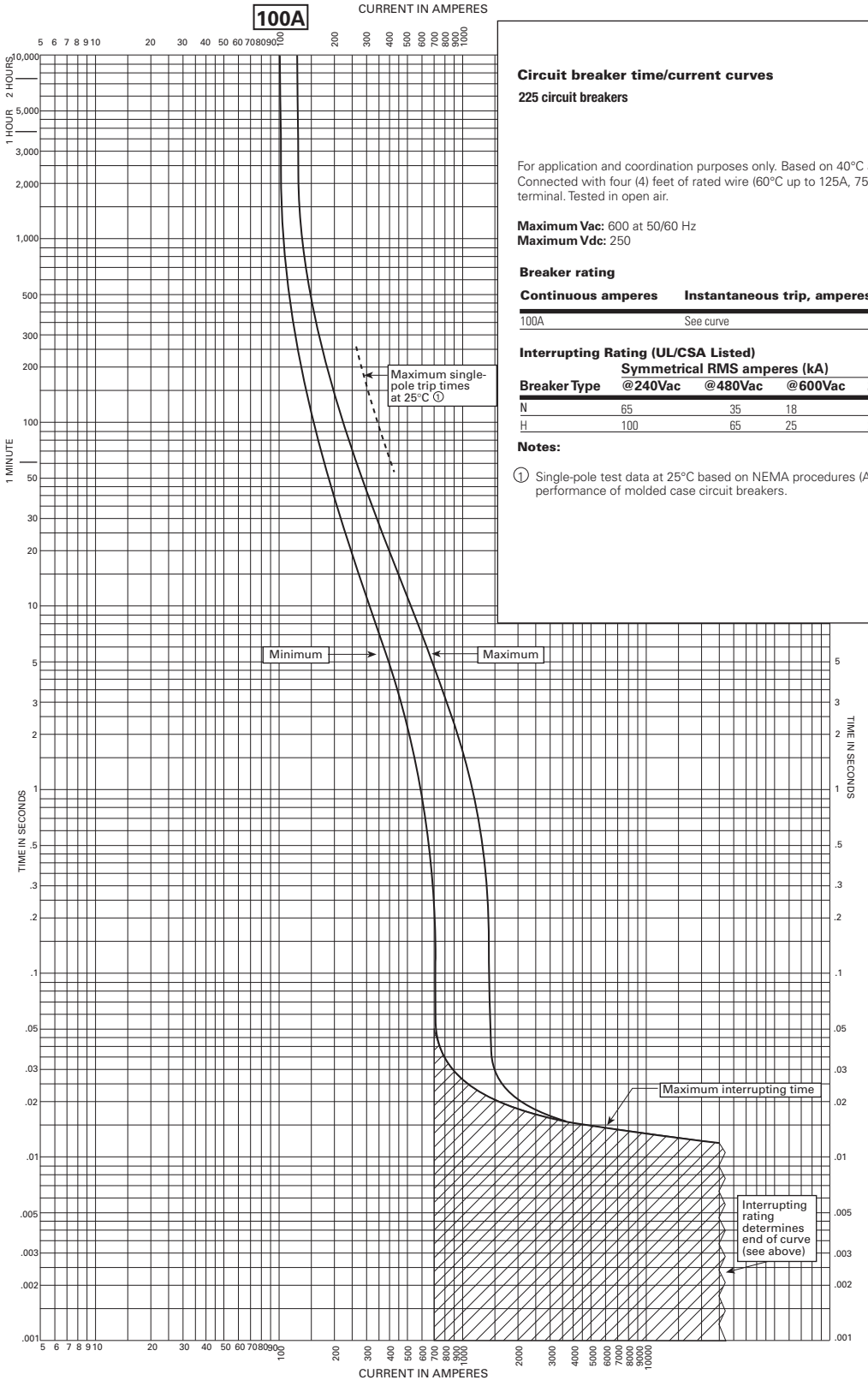
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves
225 N., H.



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
100A	See curve

Interrupting Rating (UL/CSA Listed)

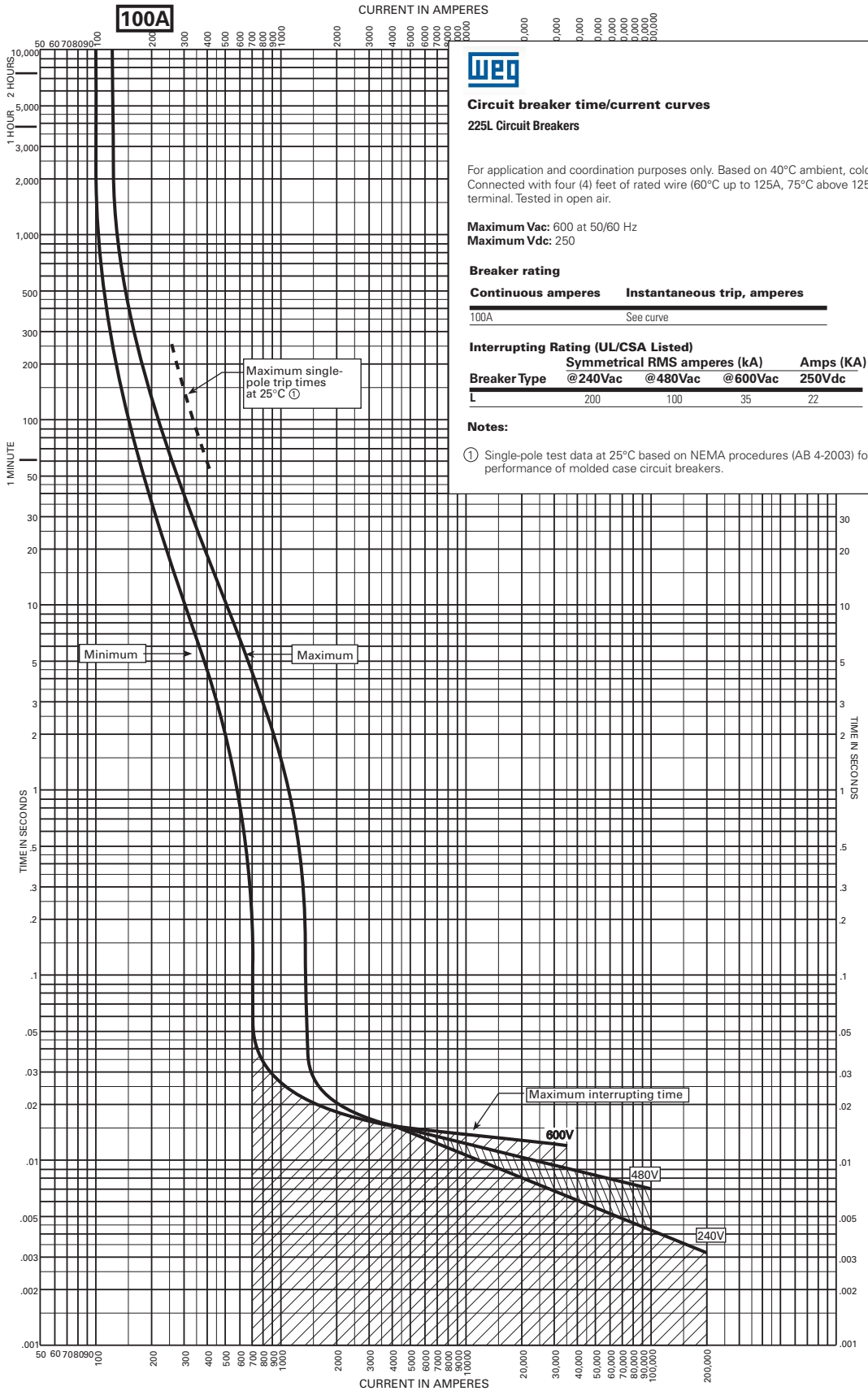
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves

225L



Circuit breaker time/current curves

225L Circuit Breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
100A	See curve

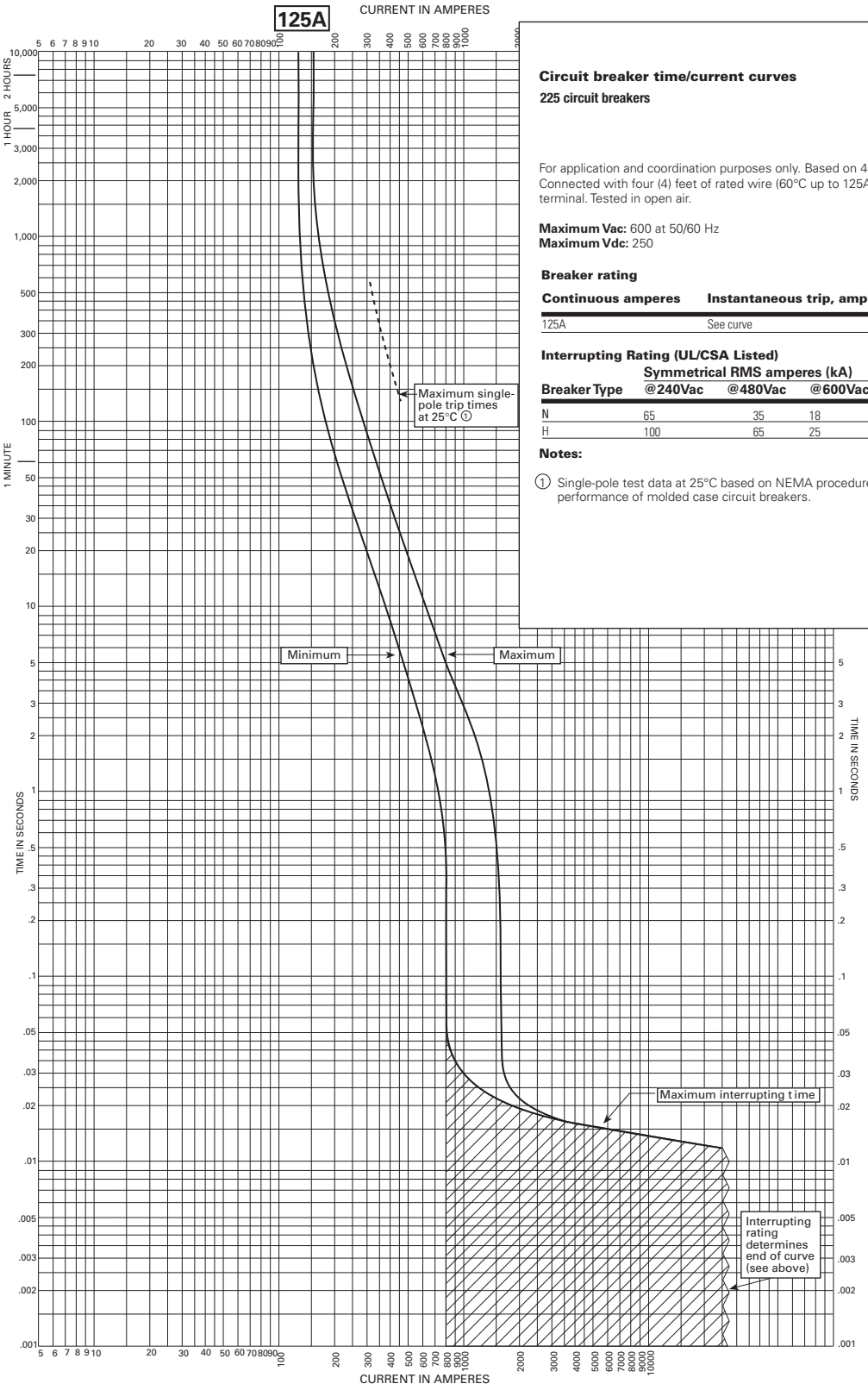
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves
225 N., H.



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
125A	See curve

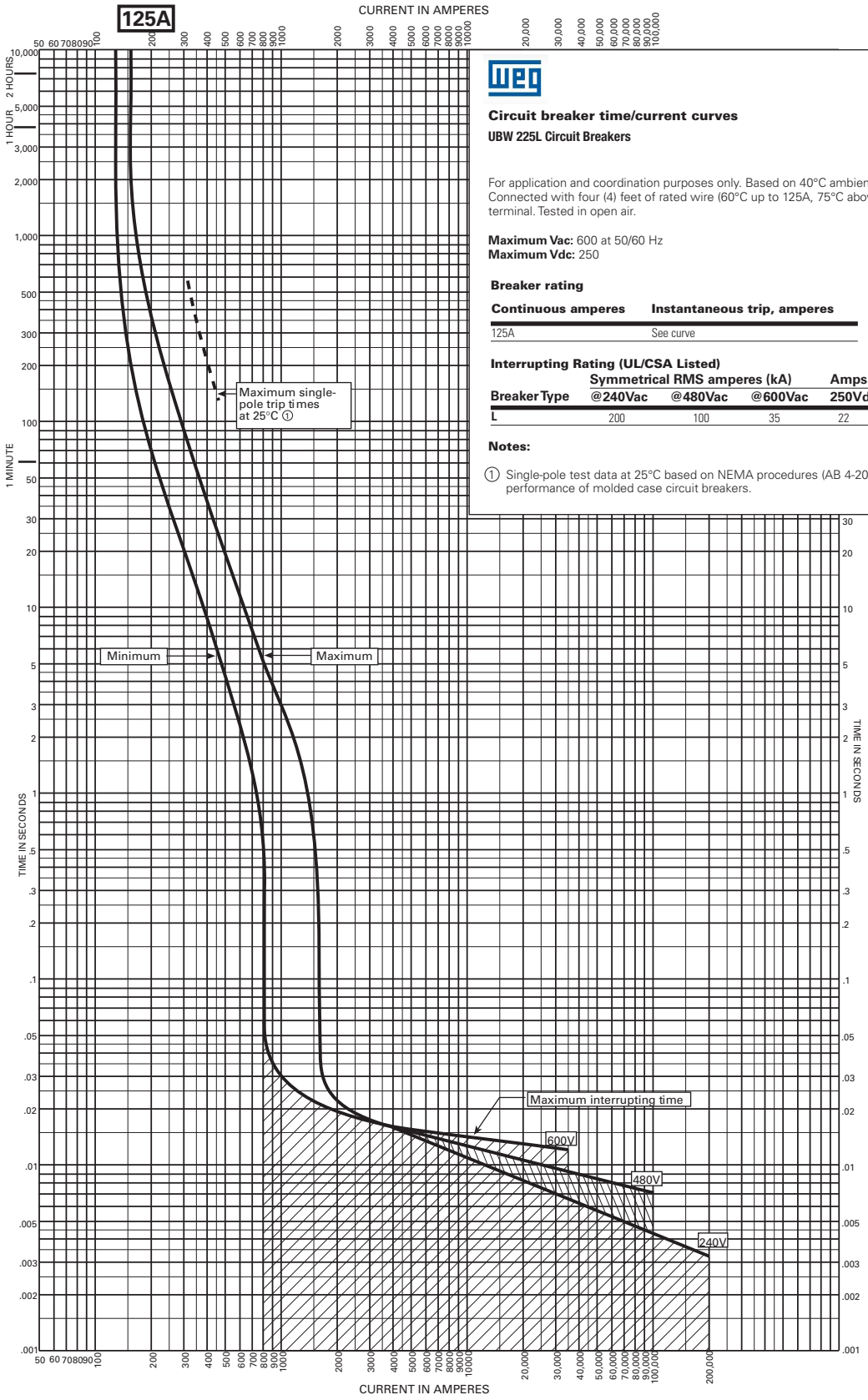
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves
225L



Circuit breaker time/current curves

UBW 225L Circuit Breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
125A	See curve

Interrupting Rating (UL/CSA Listed)

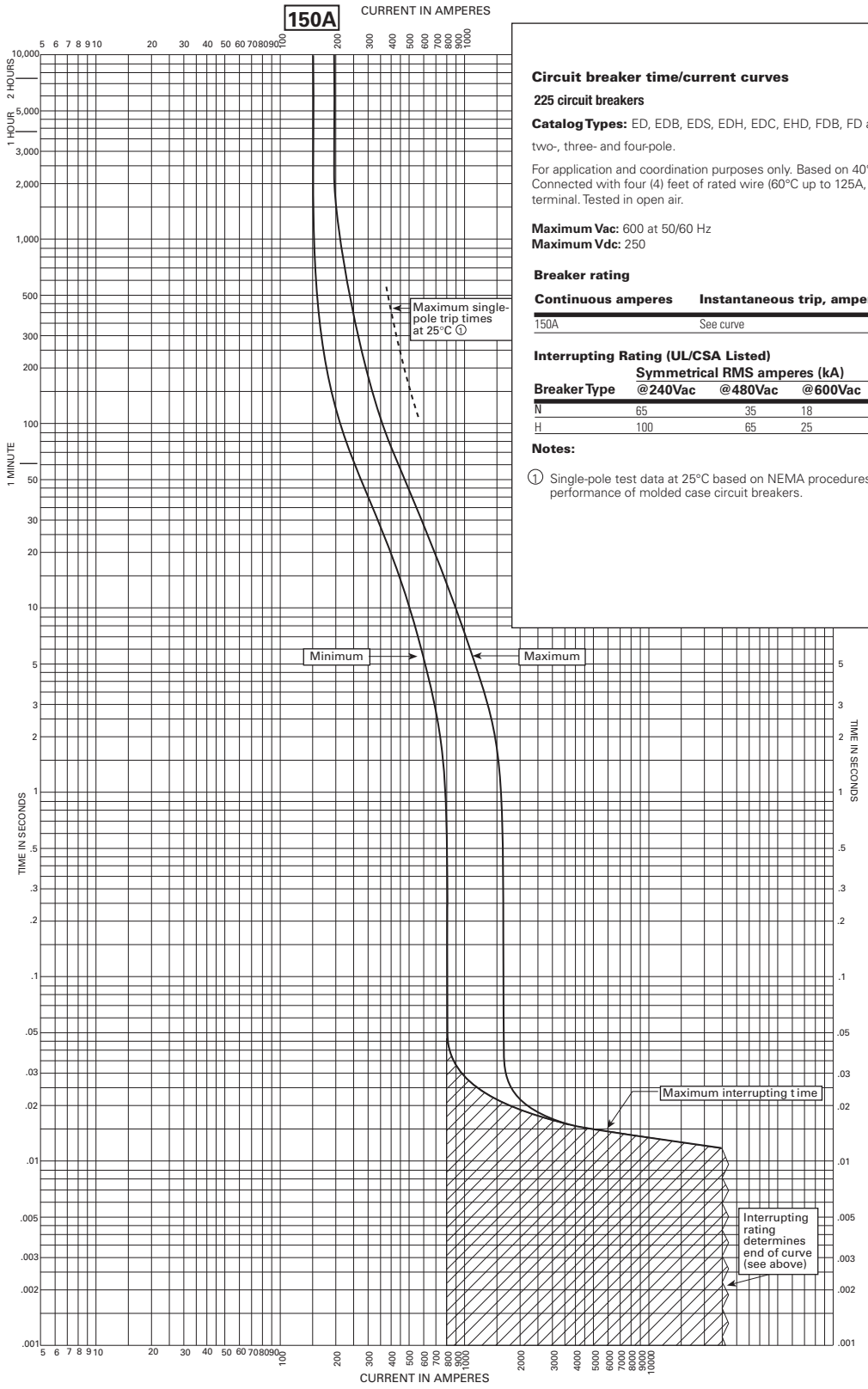
	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves

225 N., H.



Circuit breaker time/current curves

225 circuit breakers

Catalog Types: ED, EDB, EDS, EDH, EDC, EHD, FDB, FD and HFD circuit breakers, two-, three- and four-pole.

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
150A	See curve

Interrupting Rating (UL/CSA Listed)

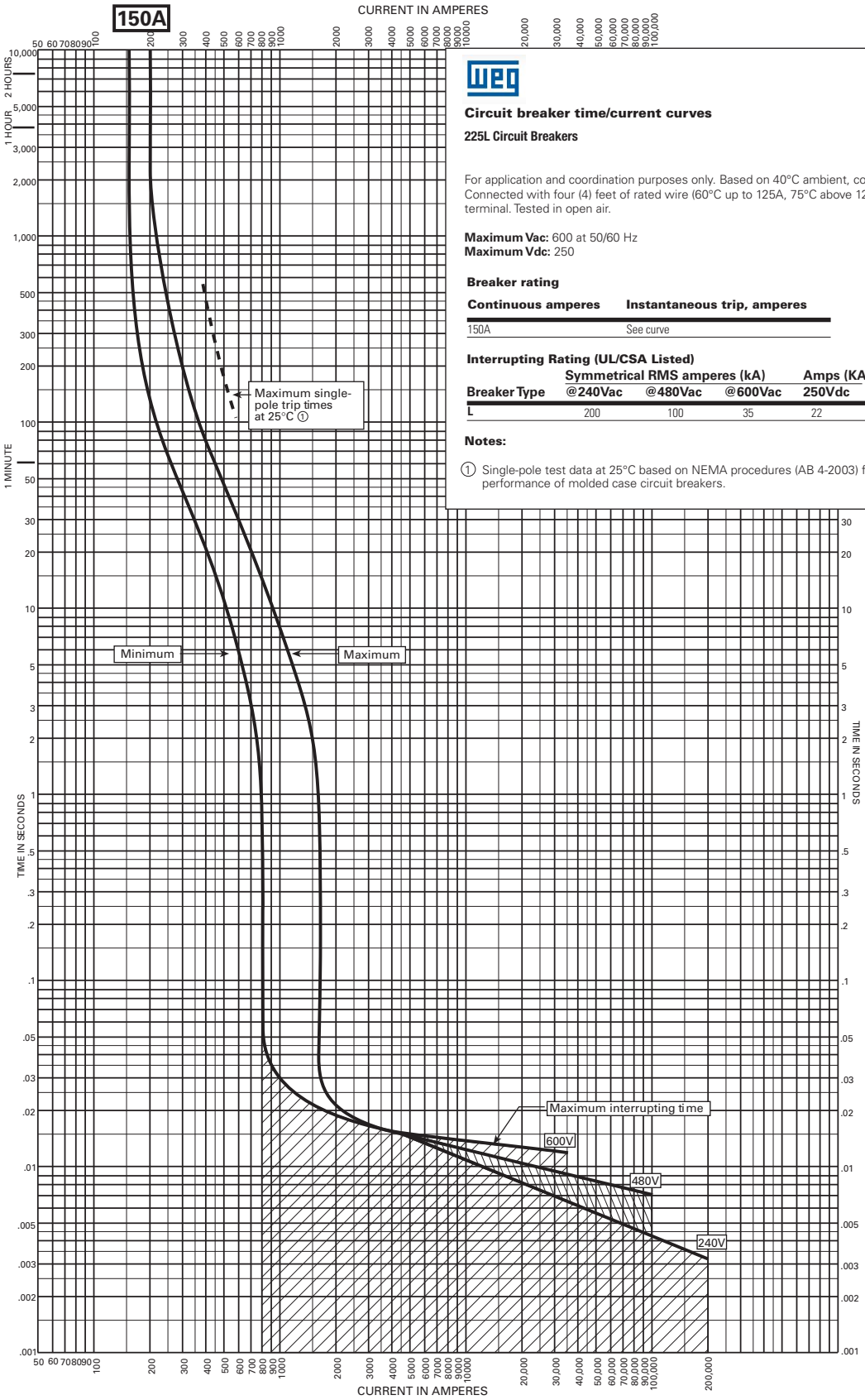
	Symmetrical RMS amperes (kA)			
Breaker Type	@240Vac	@480Vac	@600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

UBW Time Current Curves

225L



Circuit breaker time/current curves

225L Circuit Breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (60°C up to 125A, 75°C above 125A) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

Continuous amperes	Instantaneous trip, amperes
150A	See curve

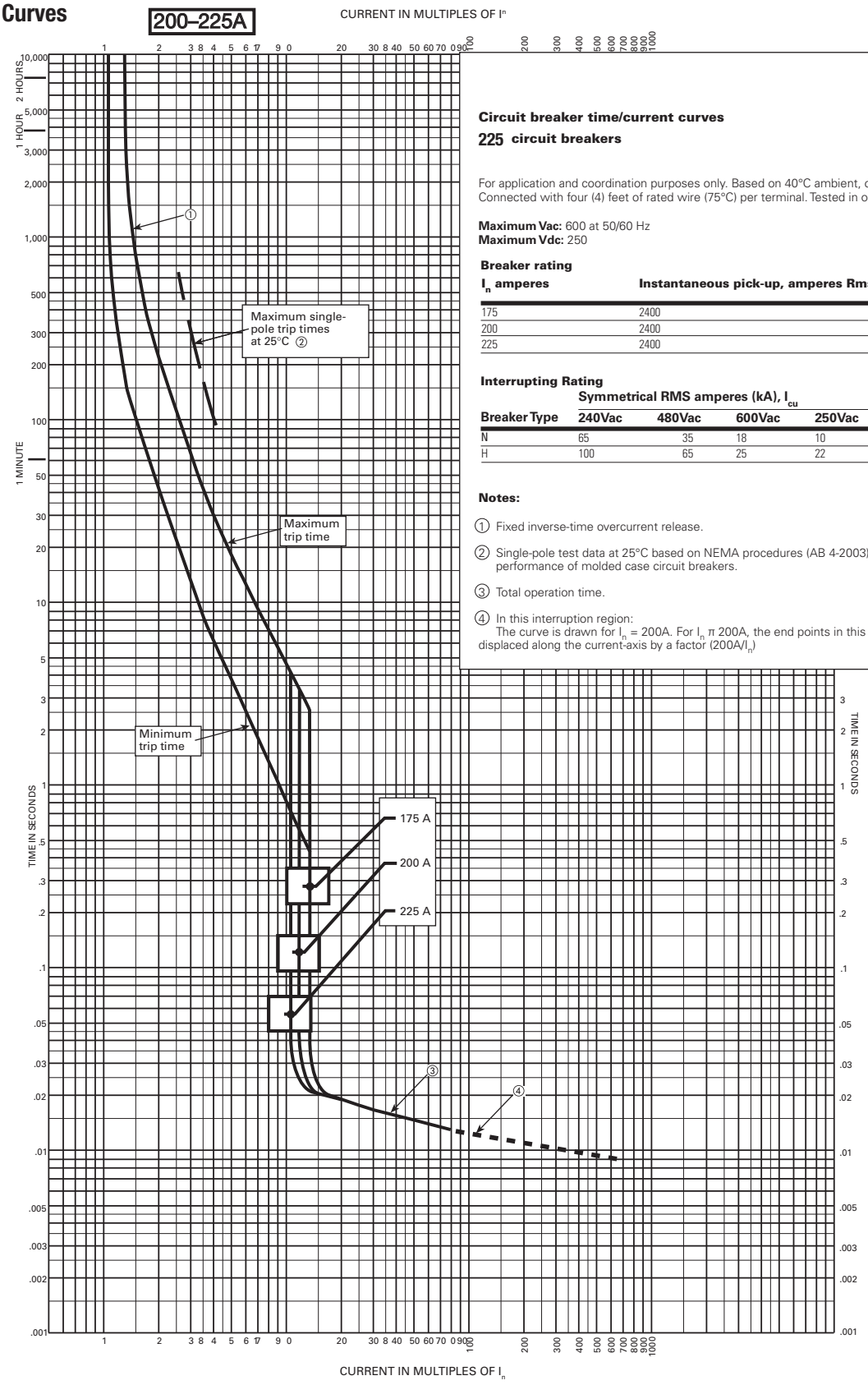
Interrupting Rating (UL/CSA Listed)

	Symmetrical RMS amperes (kA)			Amps (KA)
Breaker Type	@240Vac	@480Vac	@600Vac	250Vdc
L	200	100	35	22

Notes:

① Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

Time Current Curves
225 N., H.



Circuit breaker time/current curves

225 circuit breakers

For application and coordination purposes only. Based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (75°C) per terminal. Tested in open air.

Maximum Vac: 600 at 50/60 Hz
Maximum Vdc: 250

Breaker rating

I_n amperes	Instantaneous pick-up, amperes Rms
175	2400
200	2400
225	2400

Interrupting Rating

	Symmetrical RMS amperes (kA), I_{cu}			
Breaker Type	240Vac	480Vac	600Vac	250Vac
N	65	35	18	10
H	100	65	25	22

Notes:

① Fixed inverse-time overcurrent release.

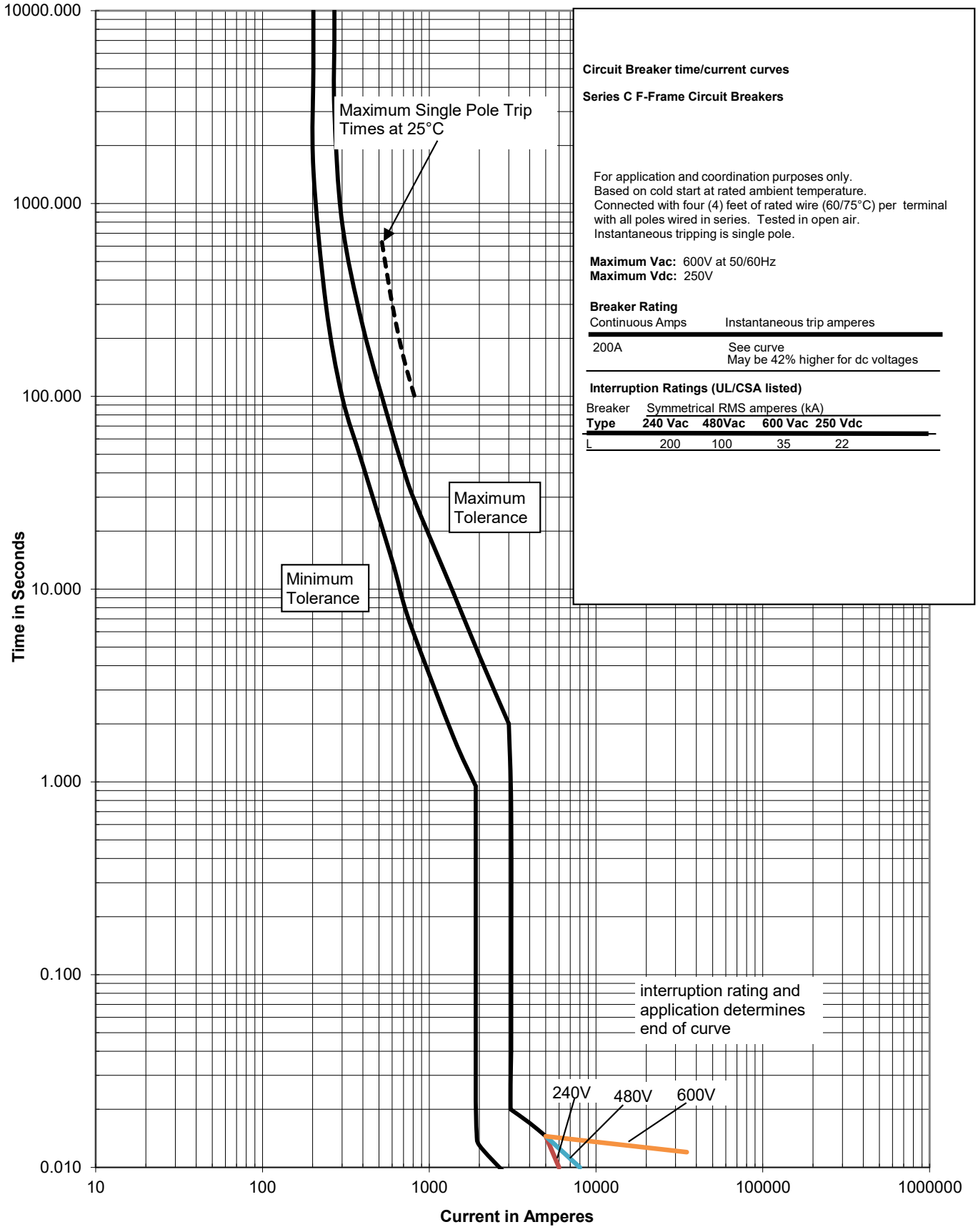
② Single-pole test data at 25°C based on NEMA procedures (AB 4-2003) for verifying performance of molded case circuit breakers.

③ Total operation time.

④ In this interruption region:
The curve is drawn for I_n = 200A. For I_n π 200A, the end points in this region are displaced along the current-axis by a factor (200A/I_n)

Time Current Curves

200 L



Circuit Breaker time/current curves

Series C F-Frame Circuit Breakers

For application and coordination purposes only.
Based on cold start at rated ambient temperature.
Connected with four (4) feet of rated wire (60/75°C) per terminal with all poles wired in series. Tested in open air.
Instantaneous tripping is single pole.

Maximum Vac: 600V at 50/60Hz
Maximum Vdc: 250V

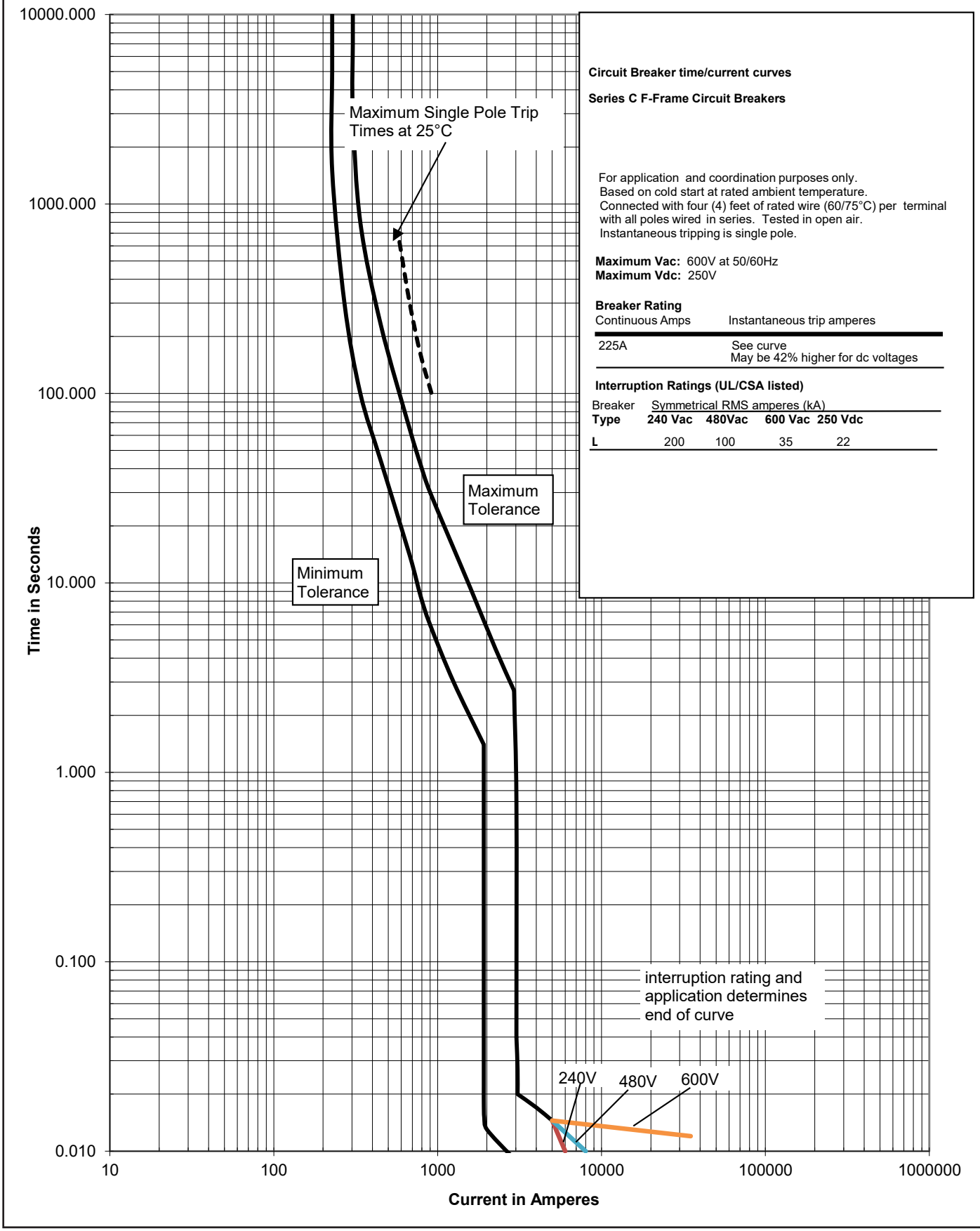
Breaker Rating

Continuous Amps	Instantaneous trip amperes
200A	See curve May be 42% higher for dc voltages

Interruption Ratings (UL/CSA listed)

Breaker	Symmetrical RMS amperes (kA)			
Type	**240 Vac**	**480Vac**	**600 Vac**	**250 Vdc**
L	200	100	35	22

Time Current Curves
225L



Circuit Breaker time/current curves

Series C F-Frame Circuit Breakers

For application and coordination purposes only.
Based on cold start at rated ambient temperature.
Connected with four (4) feet of rated wire (60/75°C) per terminal with all poles wired in series. Tested in open air.
Instantaneous tripping is single pole.

Maximum Vac: 600V at 50/60Hz
Maximum Vdc: 250V

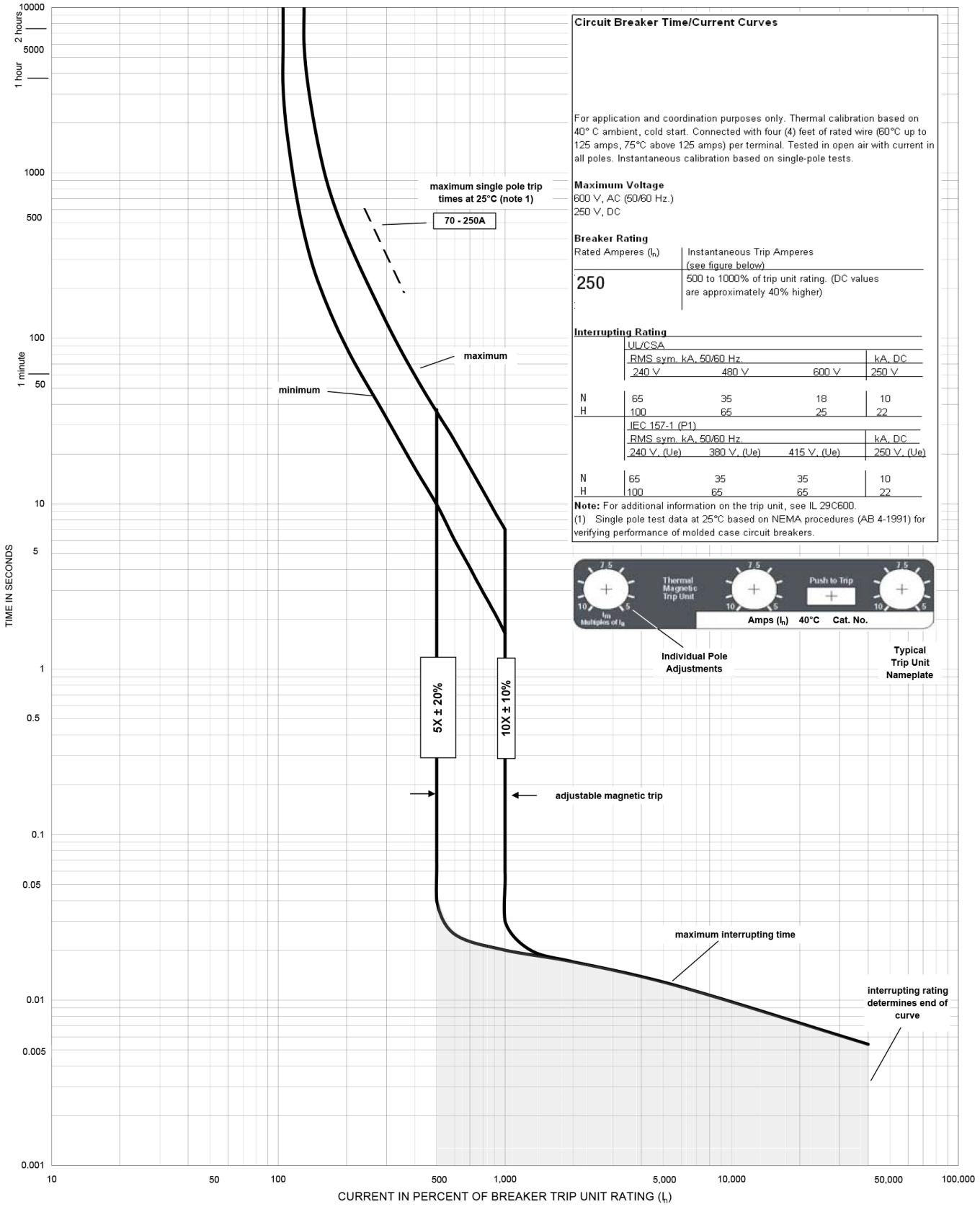
Breaker Rating

Continuous Amps	Instantaneous trip amperes
225A	See curve May be 42% higher for dc voltages

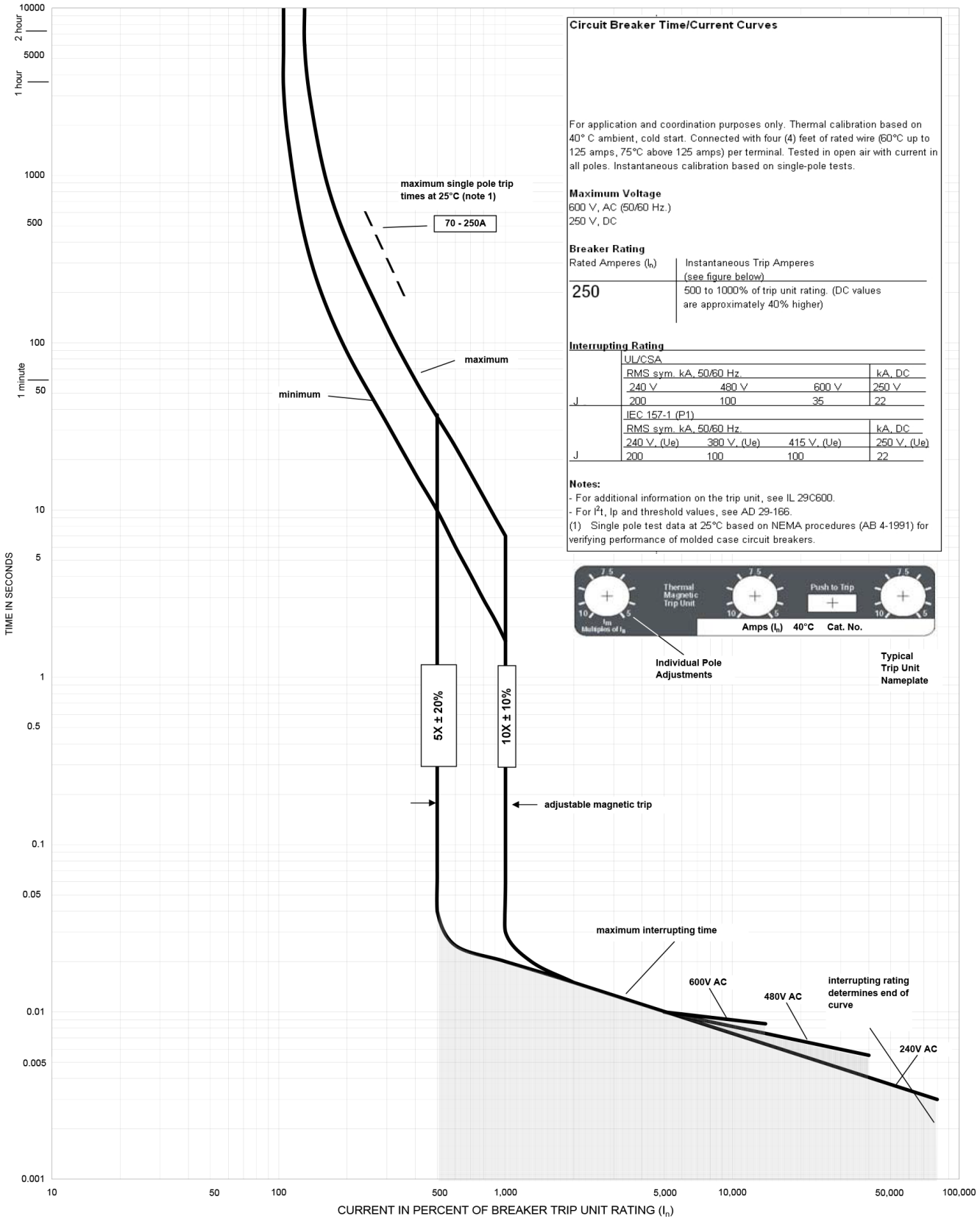
Interruption Ratings (UL/CSA listed)

Breaker	Symmetrical RMS amperes (kA)			
Type	**240 Vac**	**480Vac**	**600 Vac**	**250 Vdc**
L	200	100	35	22

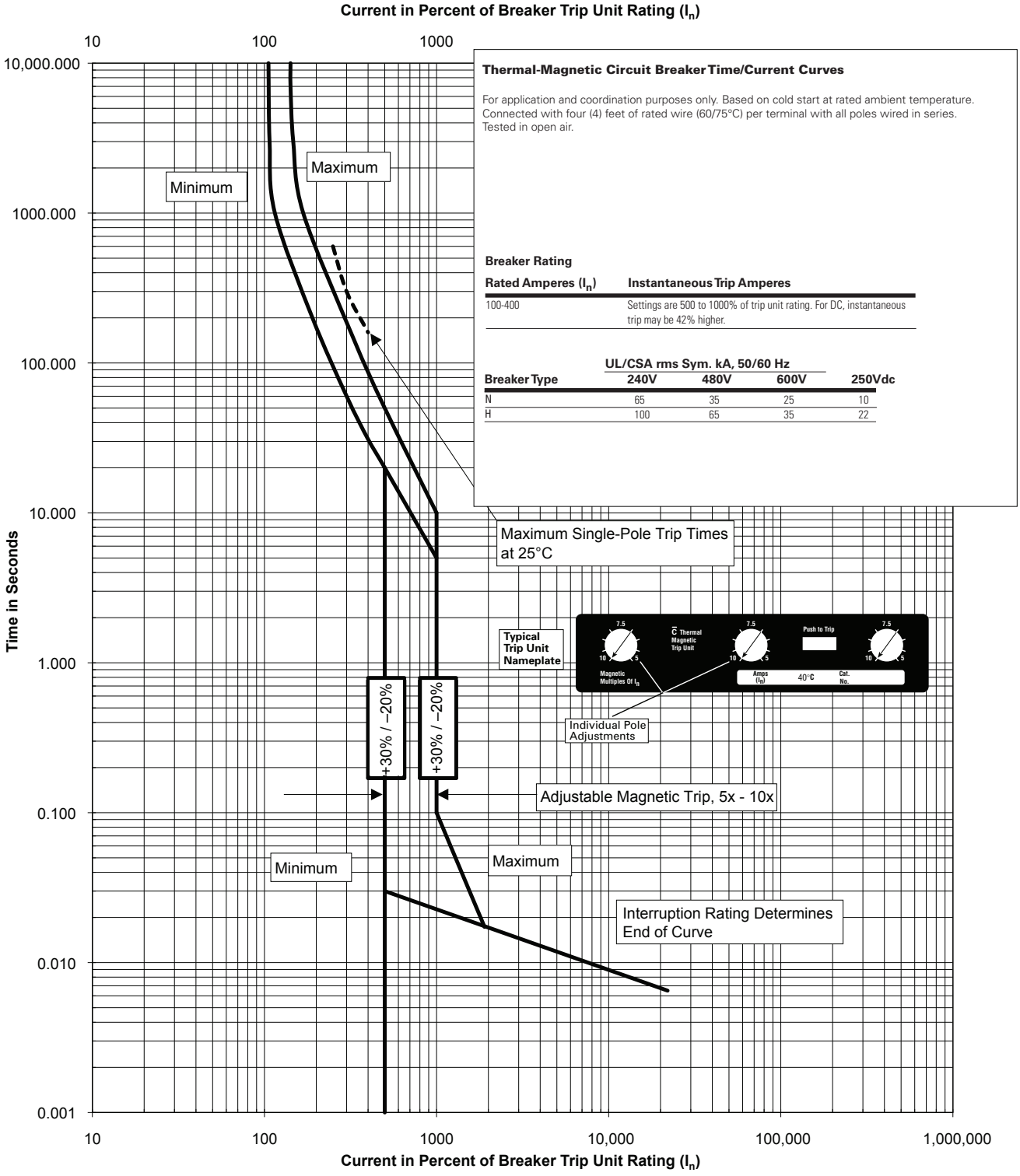
UBW Time Current Curves
250N, H



UBW Time Current Curves
250L



UBW Time Current Curves
400N, H



Thermal-Magnetic Circuit Breaker Time/Current Curves

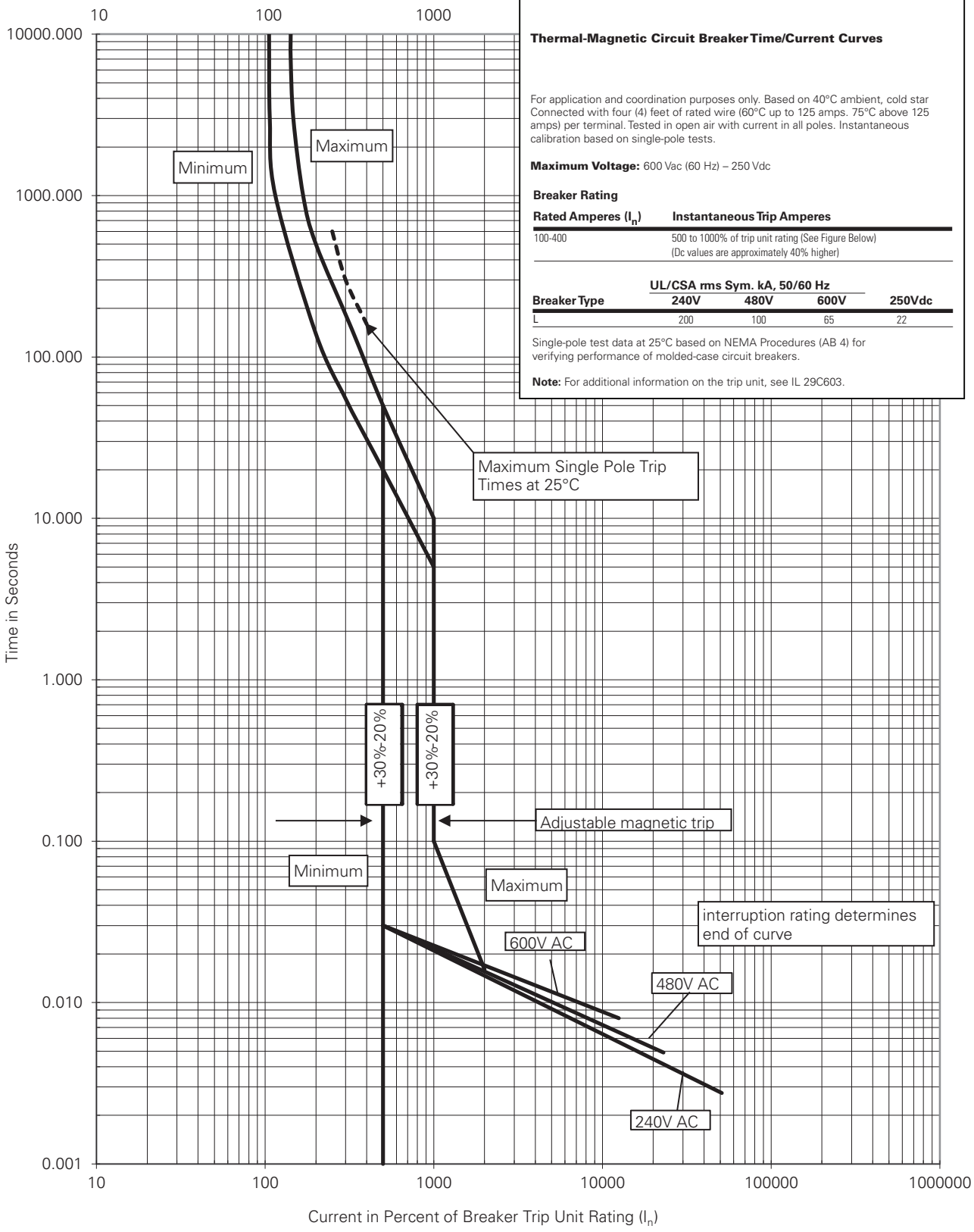
For application and coordination purposes only. Based on cold start at rated ambient temperature. Connected with four (4) feet of rated wire (60/75°C) per terminal with all poles wired in series. Tested in open air.

Breaker Rating

Rated Amperes (I_n)	Instantaneous Trip Amperes
100-400	Settings are 500 to 1000% of trip unit rating. For DC, instantaneous trip may be 42% higher.

	UL/CSA rms Sym. kA, 50/60 Hz			
Breaker Type	240V	480V	600V	250Vdc
N	65	35	25	10
H	100	65	35	22

UBW Time Current Curves
400L



Thermal-Magnetic Circuit Breaker Time/Current Curves

For application and coordination purposes only. Based on 40°C ambient, cold star Connected with four (4) feet of rated wire (60°C up to 125 amps. 75°C above 125 amps) per terminal. Tested in open air with current in all poles. Instantaneous calibration based on single-pole tests.

Maximum Voltage: 600 Vac (60 Hz) – 250 Vdc

Breaker Rating

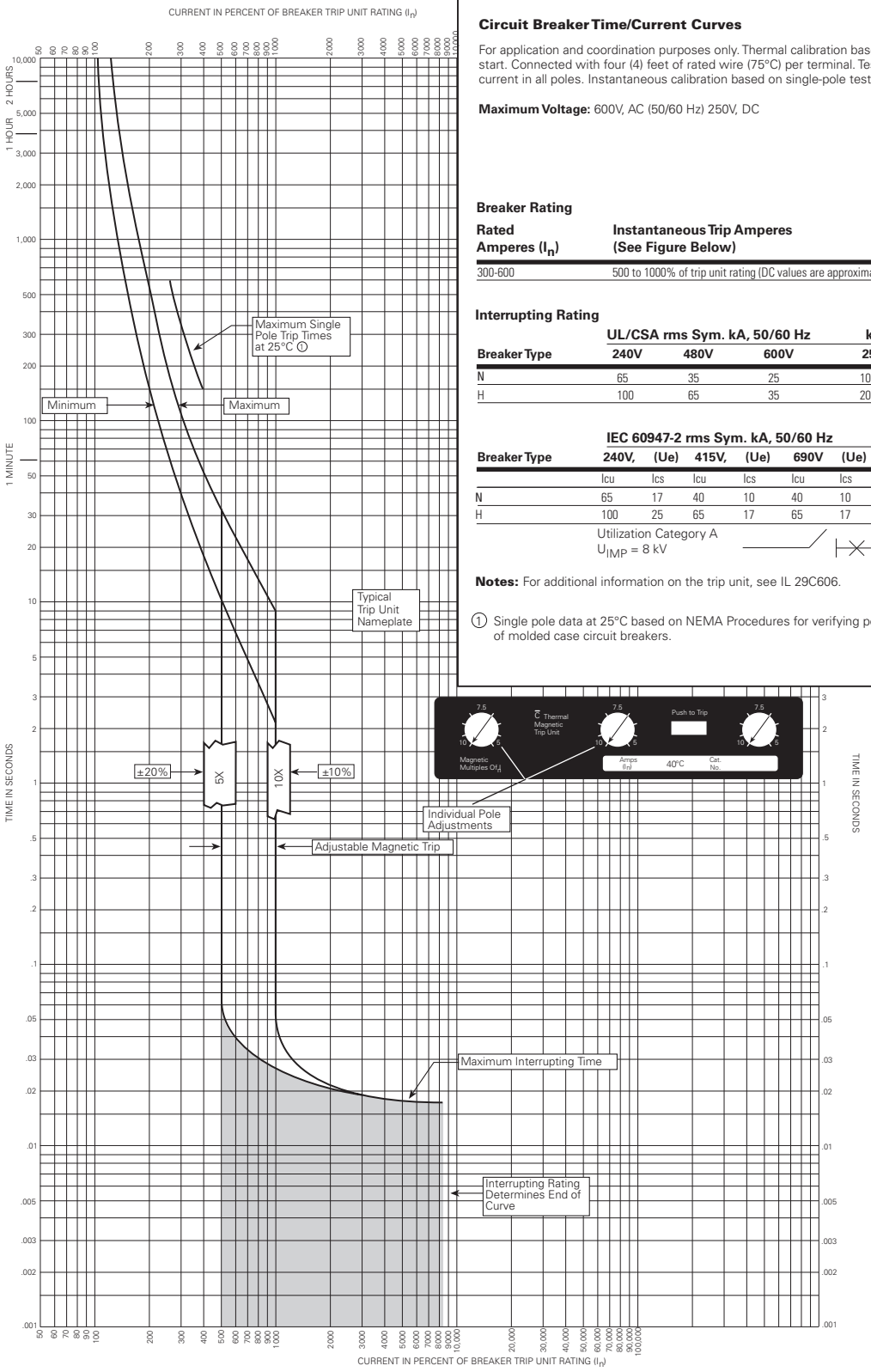
Rated Amperes (I_n)	Instantaneous Trip Amperes
100-400	500 to 1000% of trip unit rating (See Figure Below) (Dc values are approximately 40% higher)

	UL/CSA rms Sym. kA, 50/60 Hz			
Breaker Type	240V	480V	600V	250Vdc
L	200	100	65	22

Single-pole test data at 25°C based on NEMA Procedures (AB 4) for verifying performance of molded-case circuit breakers.

Note: For additional information on the trip unit, see IL 29C603.

UBW Time Current Curves
600N/H



Circuit Breaker Time/Current Curves

For application and coordination purposes only. Thermal calibration based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (75°C) per terminal. Tested in open air with current in all poles. Instantaneous calibration based on single-pole tests.

Maximum Voltage: 600V, AC (50/60 Hz) 250V, DC

Breaker Rating

Rated Amperes (I_n)	Instantaneous Trip Amperes (See Figure Below)
300-600	500 to 1000% of trip unit rating (DC values are approximately 40% higher)

Interrupting Rating

	UL/CSA rms Sym. kA, 50/60 Hz			kA, DC
Breaker Type	240V	480V	600V	250V
N	65	35	25	10
H	100	65	35	20

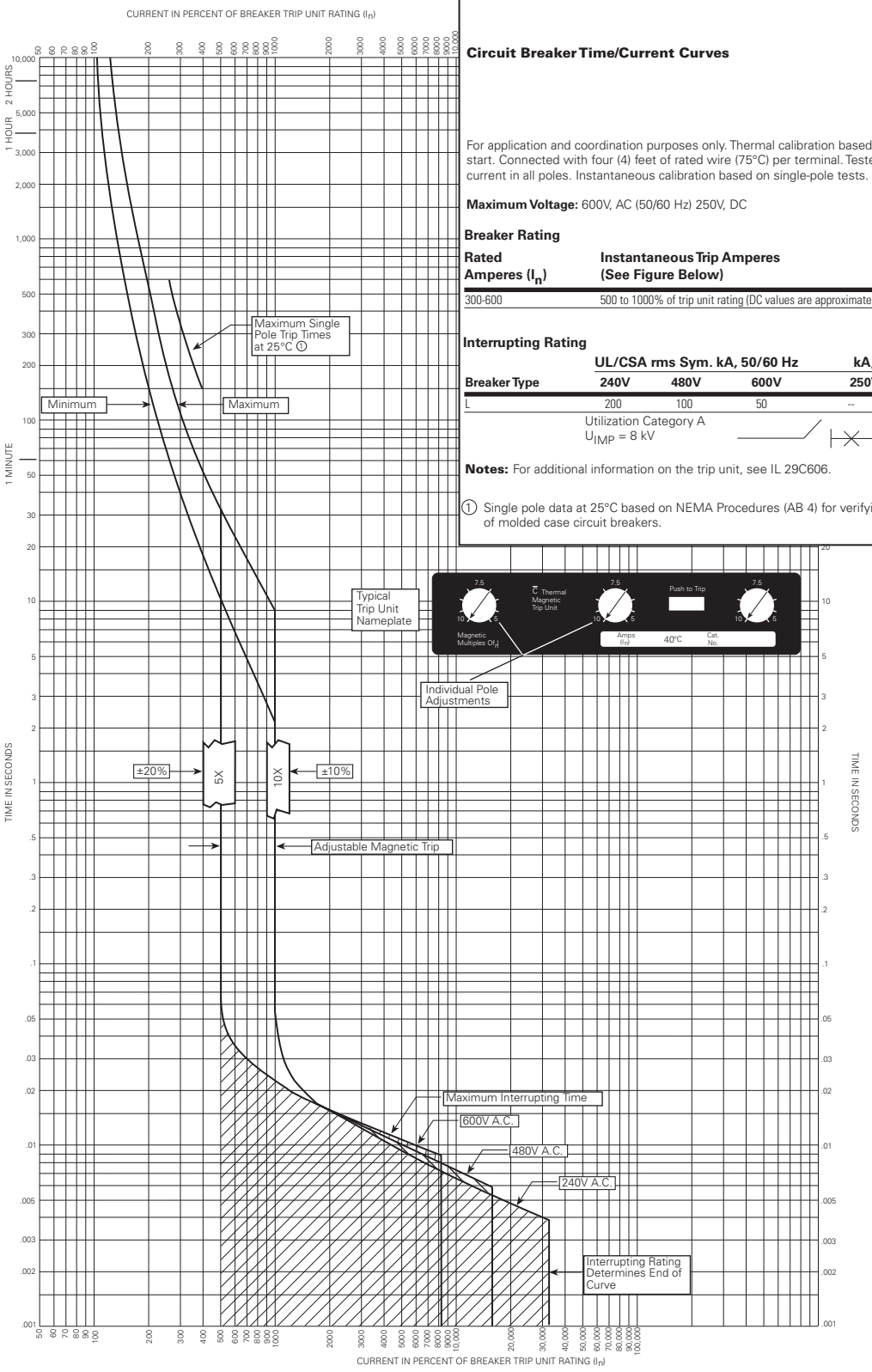
	IEC 60947-2 rms Sym. kA, 50/60 Hz						kA, DC	
Breaker Type	240V,	(Ue)	415V,	(Ue)	690V	(Ue)	250V,	(Ue)
	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
N	65	17	40	10	40	10	10	3
H	100	25	65	17	65	17	20	5

Utilization Category A
U_{IMP} = 8 kV

Notes: For additional information on the trip unit, see IL 29C606.

① Single pole data at 25°C based on NEMA Procedures for verifying performance of molded case circuit breakers.

UBW Time Current Curves
600L



Circuit Breaker Time/Current Curves

For application and coordination purposes only. Thermal calibration based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (75°C) per terminal. Tested in open air with current in all poles. Instantaneous calibration based on single-pole tests.

Maximum Voltage: 600V, AC (50/60 Hz) 250V, DC

Breaker Rating

Rated Amperes (I_n)	Instantaneous Trip Amperes (See Figure Below)
300-600	500 to 1000% of trip unit rating (DC values are approximately 40% higher)

Interrupting Rating

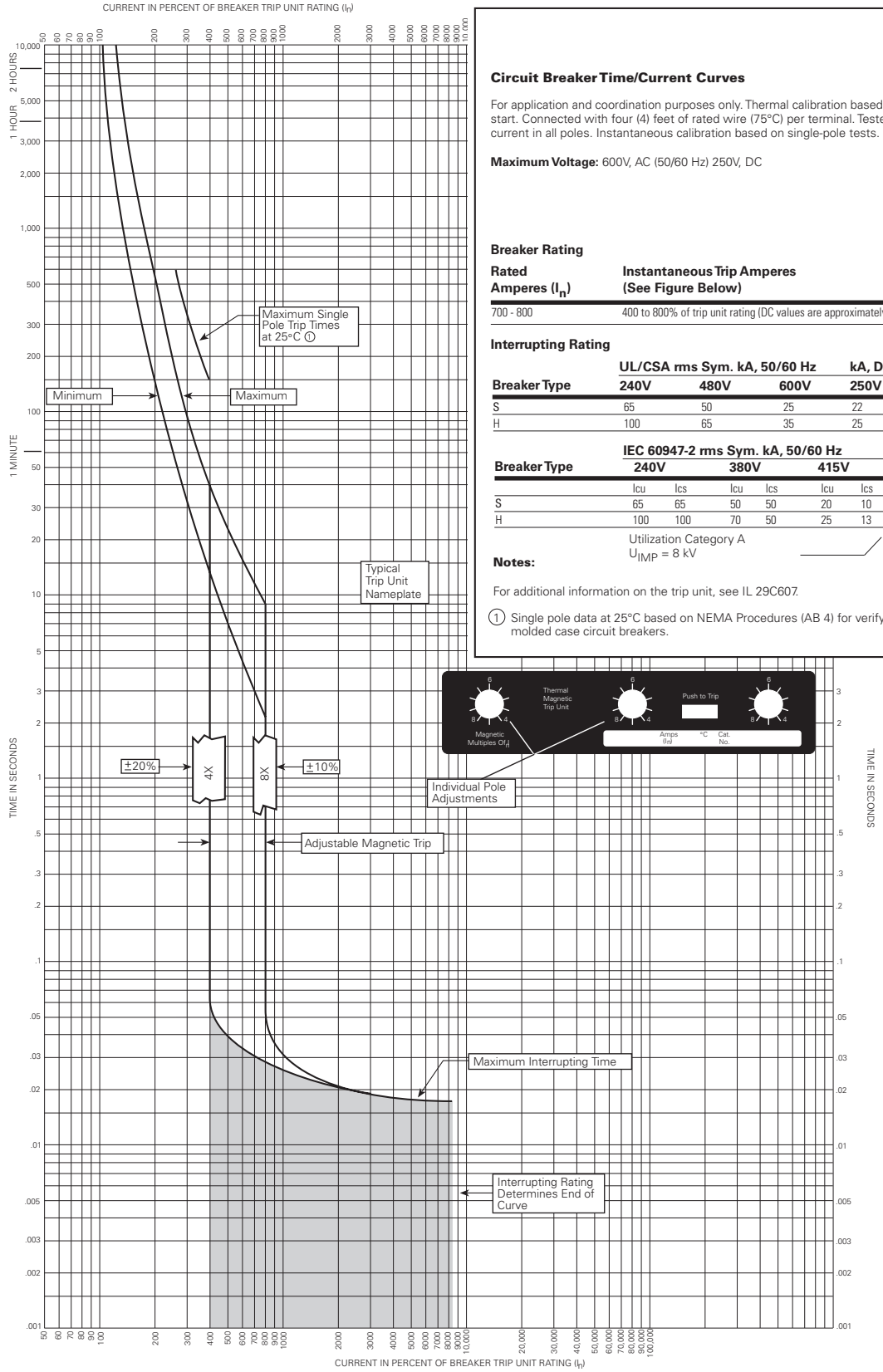
	UL/CSA rms Sym. kA, 50/60 Hz			kA, DC
Breaker Type	240V	480V	600V	250V
L	200	100	50	--

Utilization Category A
U_{IMP} = 8 kV

Notes: For additional information on the trip unit, see IL 29C606.

① Single pole data at 25°C based on NEMA Procedures (AB 4) for verifying performance of molded case circuit breakers.

UBW Time Current Curves
800S, H



Circuit Breaker Time/Current Curves

For application and coordination purposes only. Thermal calibration based on 40°C ambient, cold start. Connected with four (4) feet of rated wire (75°C) per terminal. Tested in open air with current in all poles. Instantaneous calibration based on single-pole tests.

Maximum Voltage: 600V, AC (50/60 Hz) 250V, DC

Breaker Rating

Rated Amperes (I_n)	Instantaneous Trip Amperes (See Figure Below)
700 - 800	400 to 800% of trip unit rating (DC values are approximately 40% higher)

Interrupting Rating

	UL/CSA rms Sym. kA, 50/60 Hz			kA, DC
Breaker Type	240V	480V	600V	250V
S	65	50	25	22
H	100	65	35	25

	IEC 60947-2 rms Sym. kA, 50/60 Hz						kA, DC	
Breaker Type	240V		380V		415V		250V	
	Icu	Ics	Icu	Ics	Icu	Ics		
S	65	65	50	50	20	10	20	10
H	100	100	70	50	25	13	20	10

Utilization Category A
U_{IMP} = 8 kV

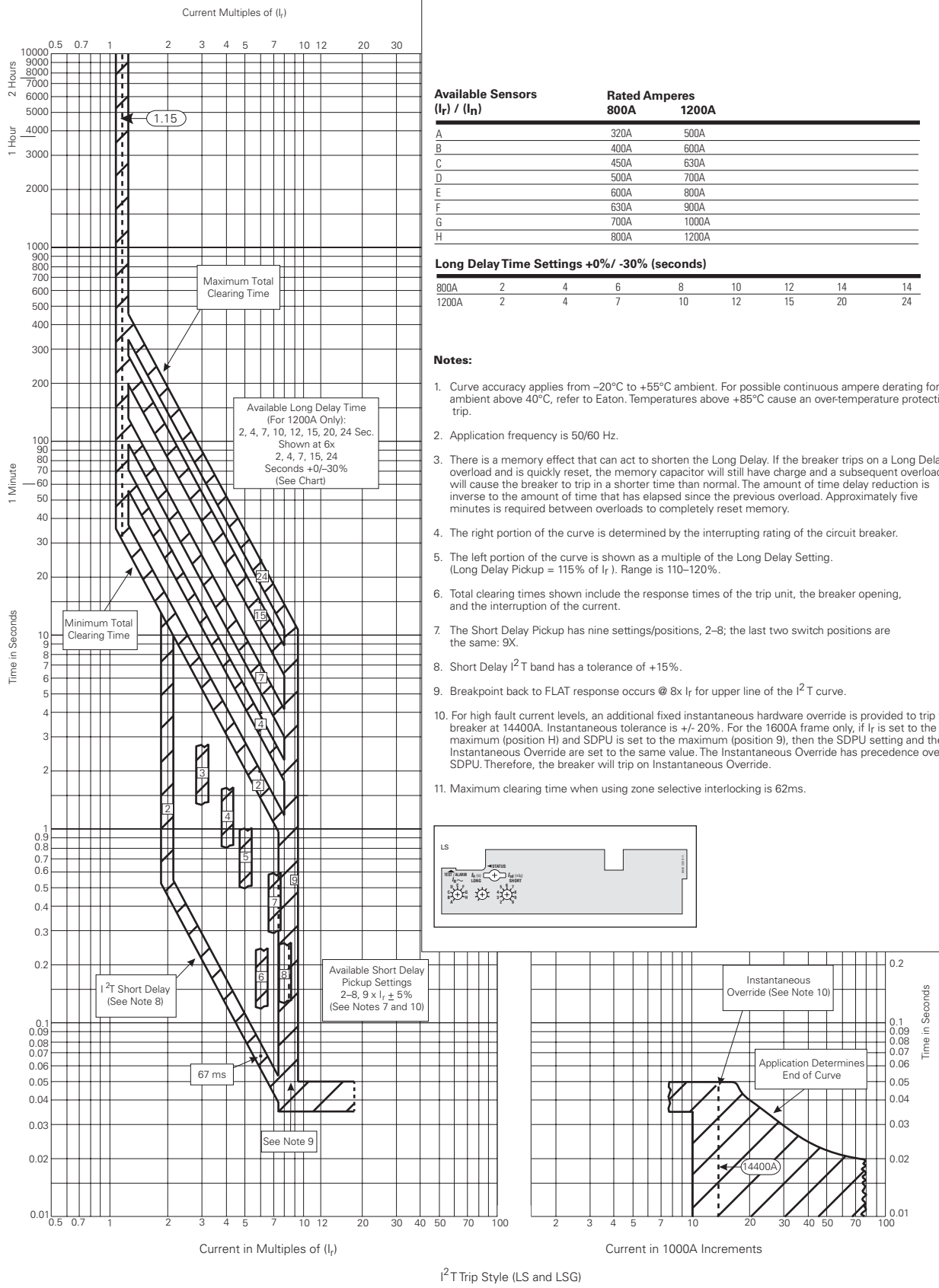
Notes:

For additional information on the trip unit, see IL 29C607.

① Single pole data at 25°C based on NEMA Procedures (AB 4) for verifying performance of molded case circuit breakers.

UBW Time Current Curves
1200S, H, L

0+ Circuit Breaker Time/Current Curves (Phase Current)



I^2T Trip Style (LS and LSG)

Available Sensors (I_r) / (I_n)	Rated Amperes 800A	1200A
A	320A	500A
B	400A	600A
C	450A	630A
D	500A	700A
E	600A	800A
F	630A	900A
G	700A	1000A
H	800A	1200A

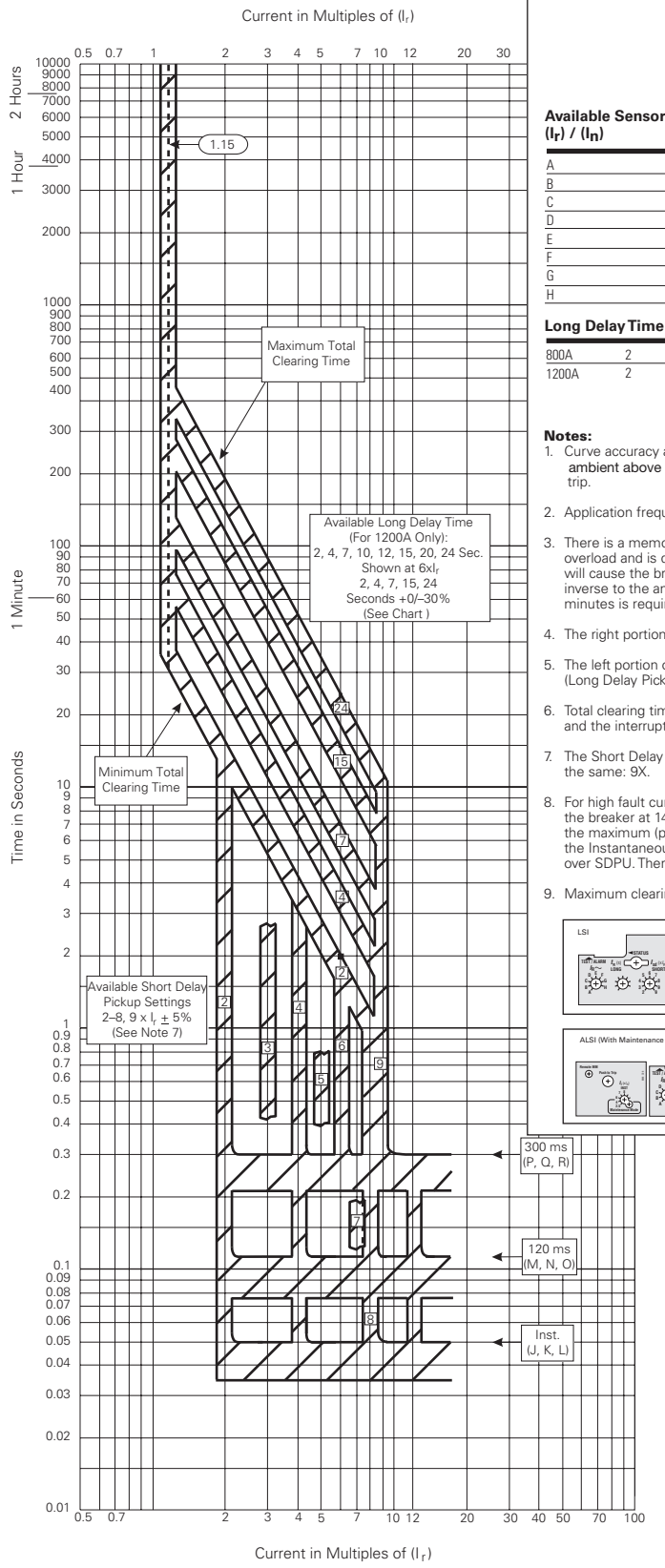
Long Delay Time Settings +0%/ -30% (seconds)

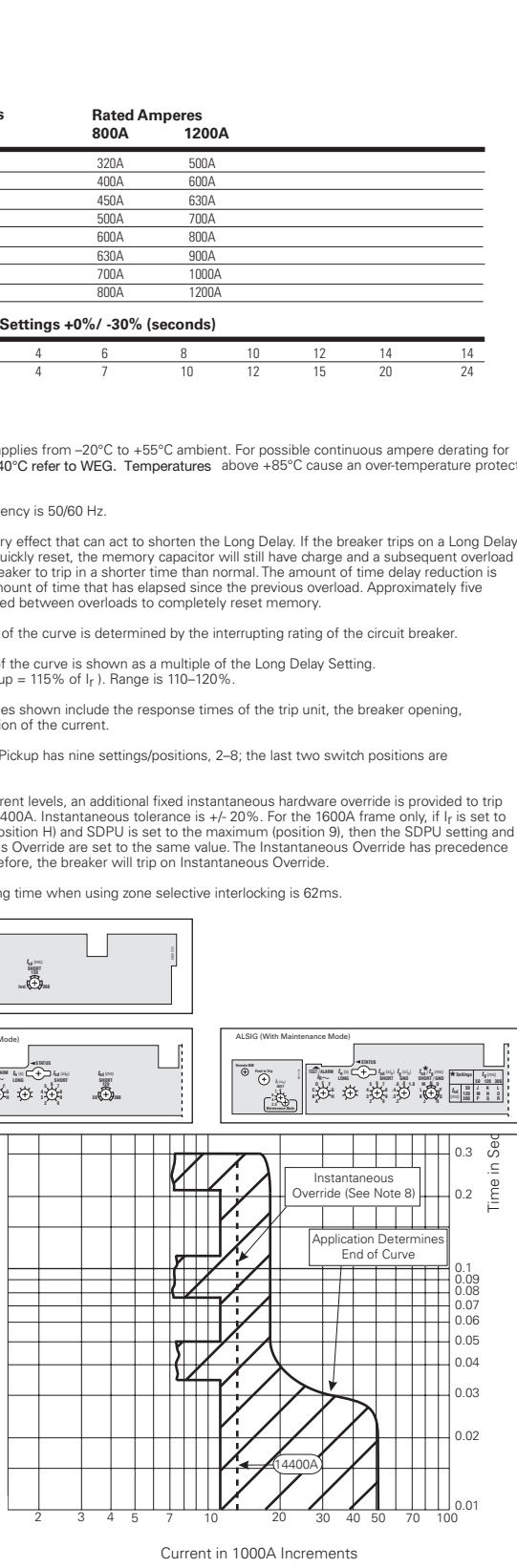
800A	2	4	6	8	10	12	14	14
1200A	2	4	7	10	12	15	20	24

Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous ampere derating for ambient above 40°C, refer to Eaton. Temperatures above +85°C cause an over-temperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the Long Delay. If the breaker trips on a Long Delay overload and is quickly reset, the memory capacitor will still have charge and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting. (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions, 2–8; the last two switch positions are the same: 9X.
8. Short Delay I^2T band has a tolerance of +15%.
9. Breakpoint back to FLAT response occurs @ 8x I_r for upper line of the I^2T curve.
10. For high fault current levels, an additional fixed instantaneous hardware override is provided to trip the breaker at 14400A. Instantaneous tolerance is +/- 20%. For the 1600A frame only, if I_r is set to the maximum (position H) and SDPU is set to the maximum (position 9), then the SDPU setting and the Instantaneous Override are set to the same value. The Instantaneous Override has precedence over SDPU. Therefore, the breaker will trip on Instantaneous Override.
11. Maximum clearing time when using zone selective interlocking is 62ms.

UBW Time Current Curves
1200S, H, L





Adjustable Flat Trip Style (LSI, LSIG, ALSI, ALSIG)

10+ Circuit Breaker Time/Current Curves (Phase Current)

Available Sensors (I_r) / (I_n)	Rated Amperes 800A	1200A
A	320A	500A
B	400A	600A
C	450A	630A
D	500A	700A
E	600A	800A
F	630A	900A
G	700A	1000A
H	800A	1200A

Long Delay Time Settings +0%/ -30% (seconds)

800A	2	4	6	8	10	12	14	14
1200A	2	4	7	10	12	15	20	24

Notes:

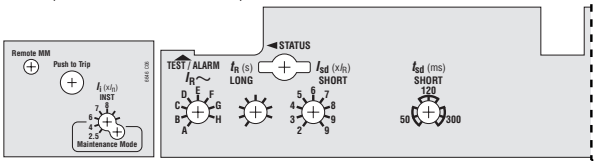
1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous ampere derating for ambient above 40°C refer to WEG. Temperatures above +85°C cause an over-temperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the Long Delay. If the breaker trips on a Long Delay overload and is quickly reset, the memory capacitor will still have charge and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting. (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions, 2–8; the last two switch positions are the same: 9X.
8. For high fault current levels, an additional fixed instantaneous hardware override is provided to trip the breaker at 14400A. Instantaneous tolerance is +/- 20%. For the 1600A frame only, if I_r is set to the maximum (position H) and SDPU is set to the maximum (position 9), then the SDPU setting and the Instantaneous Override are set to the same value. The Instantaneous Override has precedence over SDPU. Therefore, the breaker will trip on Instantaneous Override.
9. Maximum clearing time when using zone selective interlocking is 62ms.

UBW Time Current Curves 2500H/L

Maintenance Mode/Instantaneous Setting

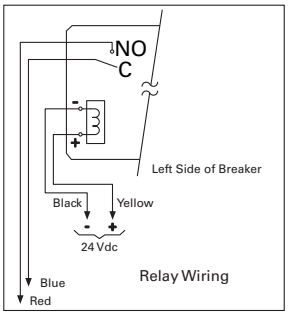
Trip Unit Type: 38 (ALSI), 39 (ALSIG)

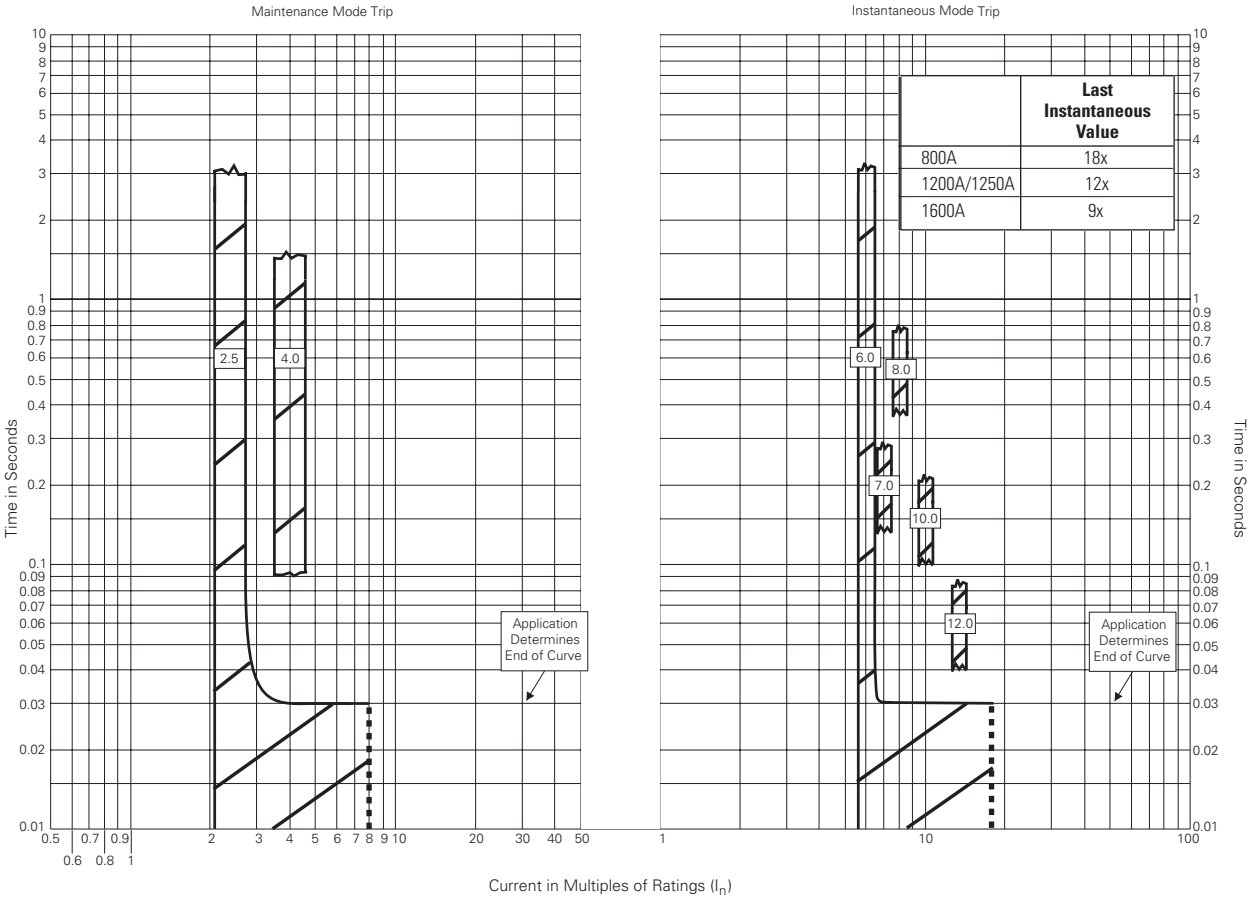
ALSI (With Maintenance Mode)



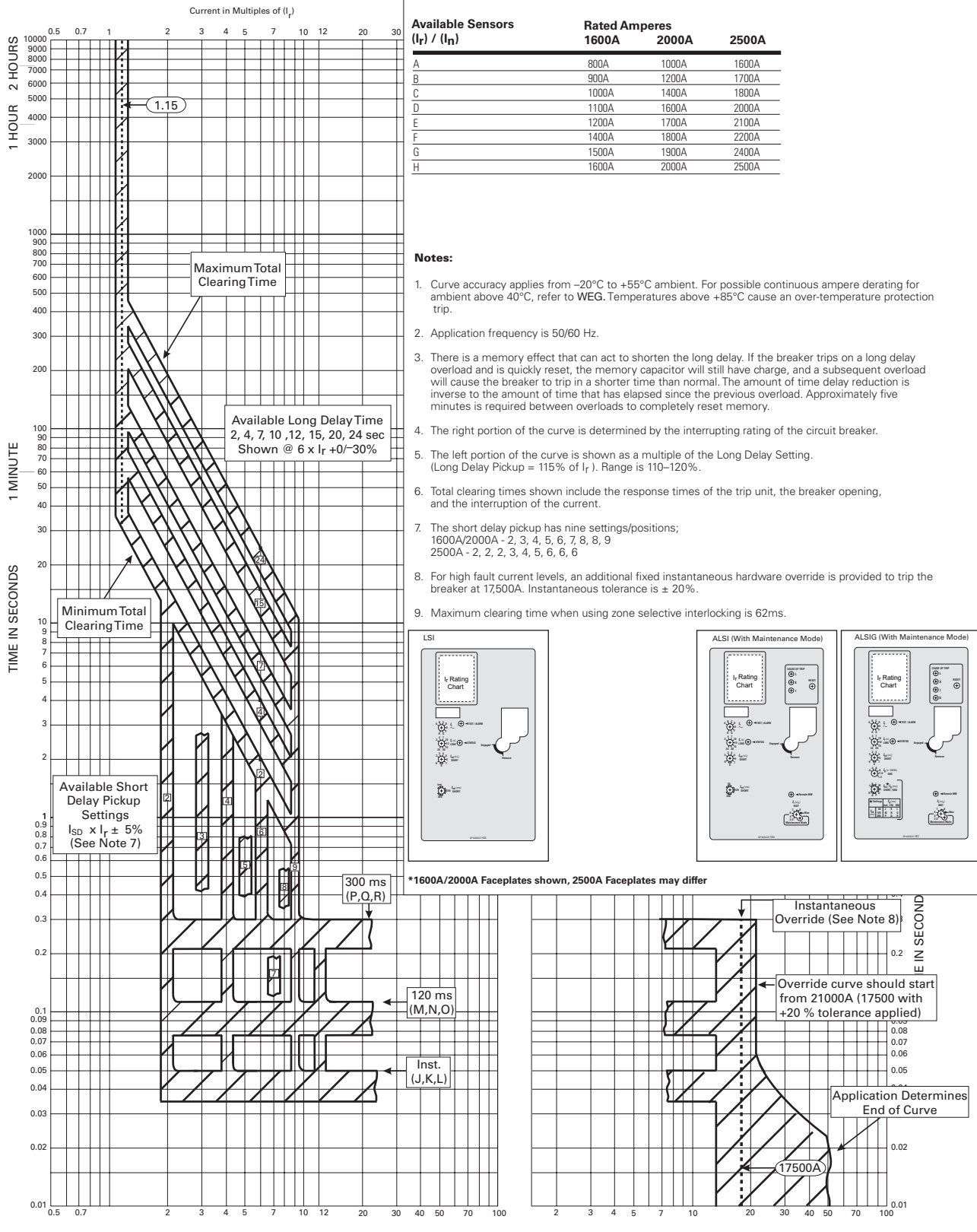
Notes:

1. The maintenance mode feature must be ENABLED for these curves to apply. The LED indicator is blue when in maintenance mode.
2. The end of the curve is determined by the interrupting rating of the circuit breaker.
3. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
4. Available pickup settings (x I_n) (tolerance is ±15%) 2.5, 4, 6, 7, 8, 10.
5. The Maintenance Mode consists of the two lowest settings of the INST switch: 2.5x and 4.0x.
6. The Remote Maintenance Mode is enabled by applying 24 VDC to the two wire cable that exists the left side of the breaker. The wires are color coded as follows: Yellow = +24 V and Black = common ground. A blue colored LED, on the left side of the breaker is the Maintenance Mode section of the trip unit, will light. The lighted blue LED indicates that the lowest setting of the Maintenance Mode is enabled. This setting corresponds to 2.5x of In. Turning the adjustable switch on the trip unit has no affect on either the Maintenance Mode or the INST Mode settings while the blue LED is lit. In addition to the blue colored LED, a relay contact (C, NO) is available. The wires for this contact exit the left hand side of the breaker and are color coded as follows: Blue = C, and Red = NO.





UBW Time Current Curves
2500H, L



Adjustable Flat Trip Style (LSI, LSIG, ALSI, ALSIG)

Circuit Breaker Time/Current Curves (Phase Current)

Available Sensors (I_r) / (I_n)	Rated Amperes 1600A	2000A	2500A
A	800A	1000A	1600A
B	900A	1200A	1700A
C	1000A	1400A	1800A
D	1100A	1600A	2000A
E	1200A	1700A	2100A
F	1400A	1800A	2200A
G	1500A	1900A	2400A
H	1600A	2000A	2500A

Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous ampere derating for ambient above 40°C, refer to WEG. Temperatures above +85°C cause an over-temperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the long delay. If the breaker trips on a long delay overload and is quickly reset, the memory capacitor will still have charge, and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting. (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The short delay pickup has nine settings/positions;
   1600A/2000A - 2, 3, 4, 5, 6, 7, 8, 8, 9
   2500A - 2, 2, 2, 3, 4, 5, 6, 6, 6
8. For high fault current levels, an additional fixed instantaneous hardware override is provided to trip the breaker at 17,500A. Instantaneous tolerance is ± 20%.
9. Maximum clearing time when using zone selective interlocking is 62ms.

***1600A/2000A Faceplates shown, 2500A Faceplates may differ**

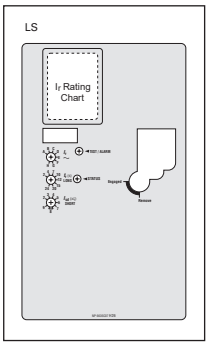
UBW Time Current Curves
2500H, L

Circuit Breaker Time/Current Curves (Phase Current)

Available Sensors (I_r) / (I_n)	Rated Amperes 1600A	2000A	2500A
A	800A	1000A	1600A
B	900A	1200A	1700A
C	1000A	1400A	1800A
D	1100A	1600A	2000A
E	1200A	1700A	2100A
F	1400A	1800A	2200A
G	1500A	1900A	2400A
H	1600A	2000A	2500A

Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. For possible continuous ampere derating for ambient above 40°C, referto WEG. Temperatures above +85°C cause an over-temperature protection trip.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the long delay. If the breaker trips on a long delay overload and is quickly reset, the memory capacitor will still have charge, and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting. (Long Delay Pickup = 115% of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The short delay pickup has nine settings/positions; 1600A/2000A - 2, 3, 4, 5, 6, 7, 8, 8, 9 2500A - 2, 2, 2, 3, 4, 5, 6, 6, 6
8. For high fault current levels, an additional fixed instantaneous hardware override is provided to trip the breaker at 17,500A. Instantaneous tolerance is ± 20%.
9. Short delay I^2T band has a tolerance of ±15%.
10. Breakpoint back to FLAT response occurs at 8 x I_r for upper line of the I^2T curve.
11. Maximum clearing time when using zone selective interlocking is 62ms.



***1600A/2000A Faceplates shown, 2500A Faceplates may differ**

I^2T Trip Style (LS, LSG)

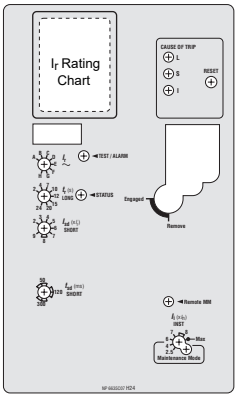
UBW Time Current Curves 2500H, L

Notes:

1. The Maintenance Mode feature must be ENABLED for these curves to apply. The LED indicator is blue when in Maintenance Mode.
2. The end of the curve is determined by the interrupting rating of the circuit breaker.
3. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
4. Available pickup settings (x I_n) (tolerance is ±15%)
   1600A Frame: 2.5, 4, 6, 7, 8, 8, 11
   2000A Frame: 2.5, 4, 6, 7, 8, 8, 9
5. These curves are comprehensive for the complete family of Series 2500 Frame electronic breakers, including all frame sizes, ratings, and constructions. The total clearing times shown are conservative and consider the maximum response times of the trip unit, the circuit breaker opening, and the interruption of the current in worst case conditions such as: maximum rated voltages, single-phase interruption, and minimum power factor. Faster clearing times are possible depending on the specific system conditions.

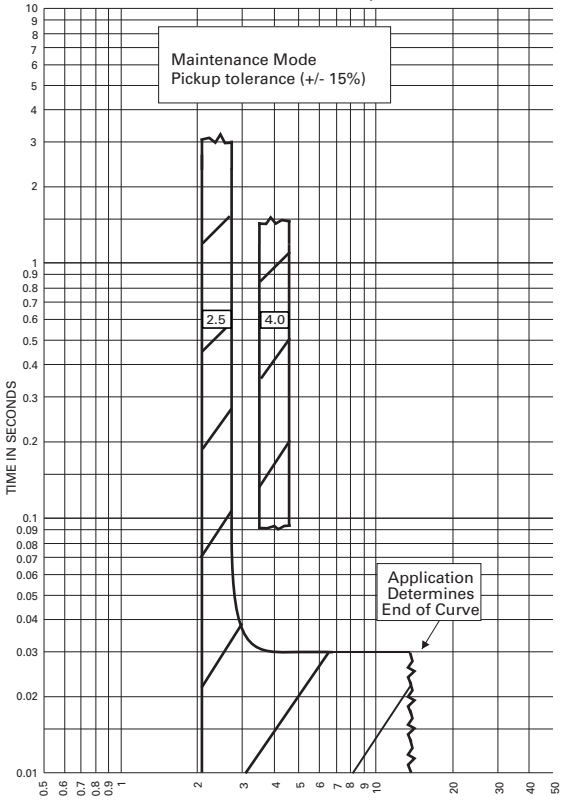
Series 2500-Frame Trip Unit Nameplates

ALSI (With Maintenance Mode)

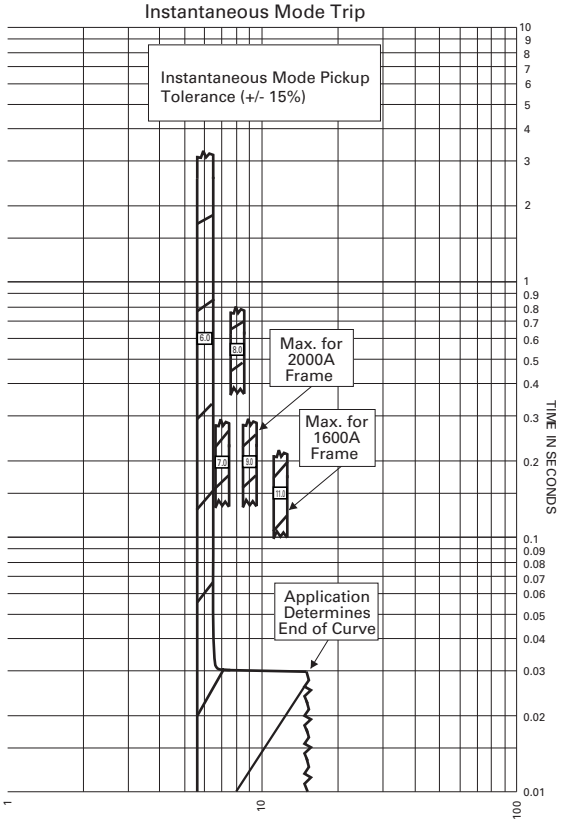


***1600A/2000A Faceplates shown, 2500A Faceplates may differ**

Maintenance Mode Trip

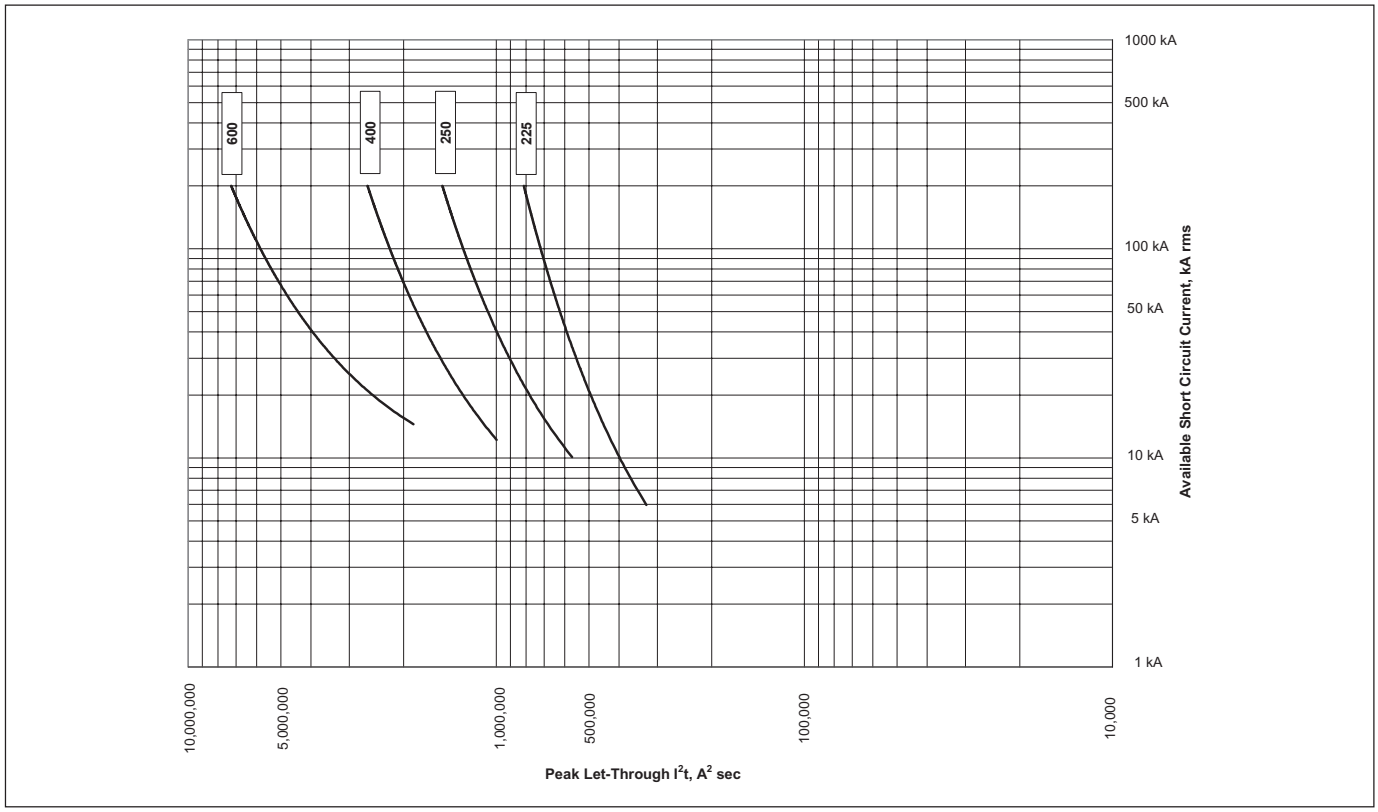


Instantaneous Mode Trip

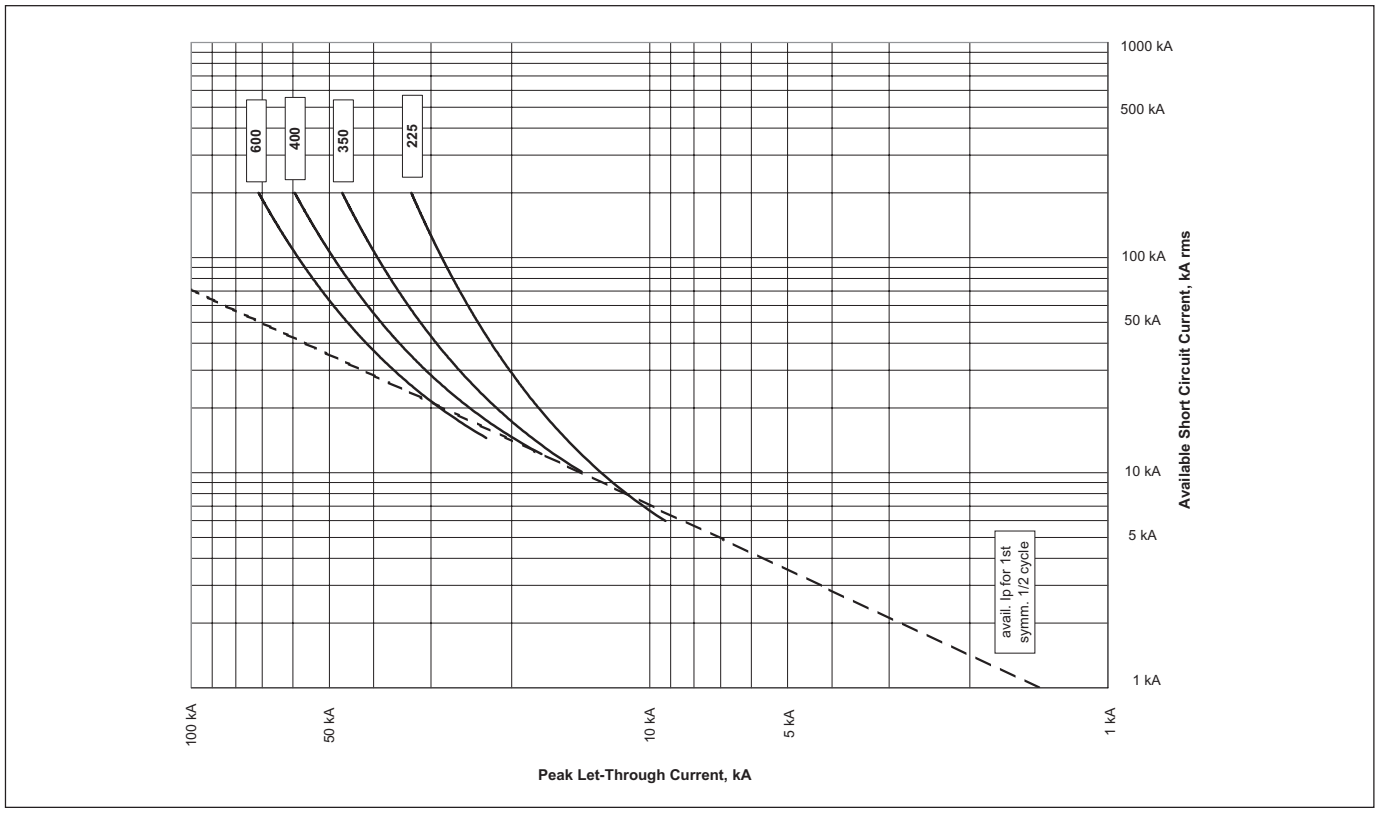


Current in Multiples of Rating (I_n)

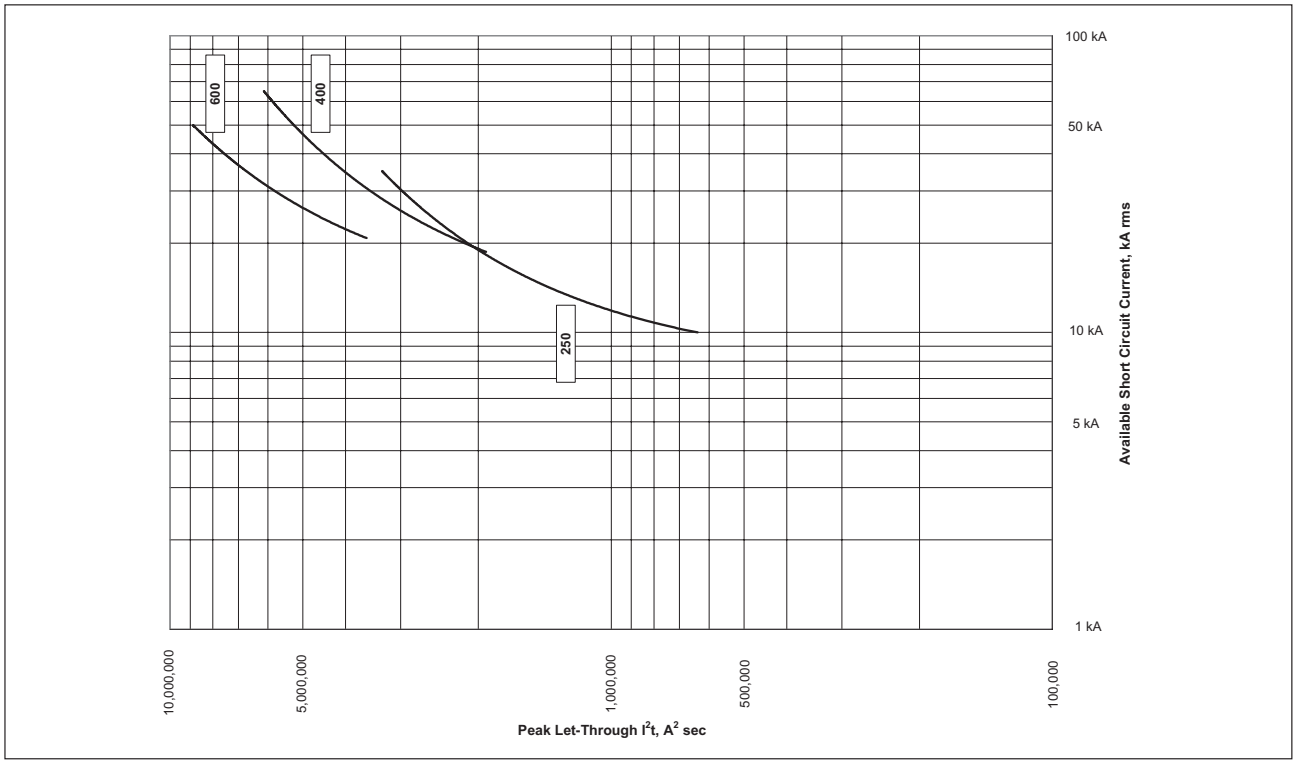
Time Current Curves
225, 250, 400, 600



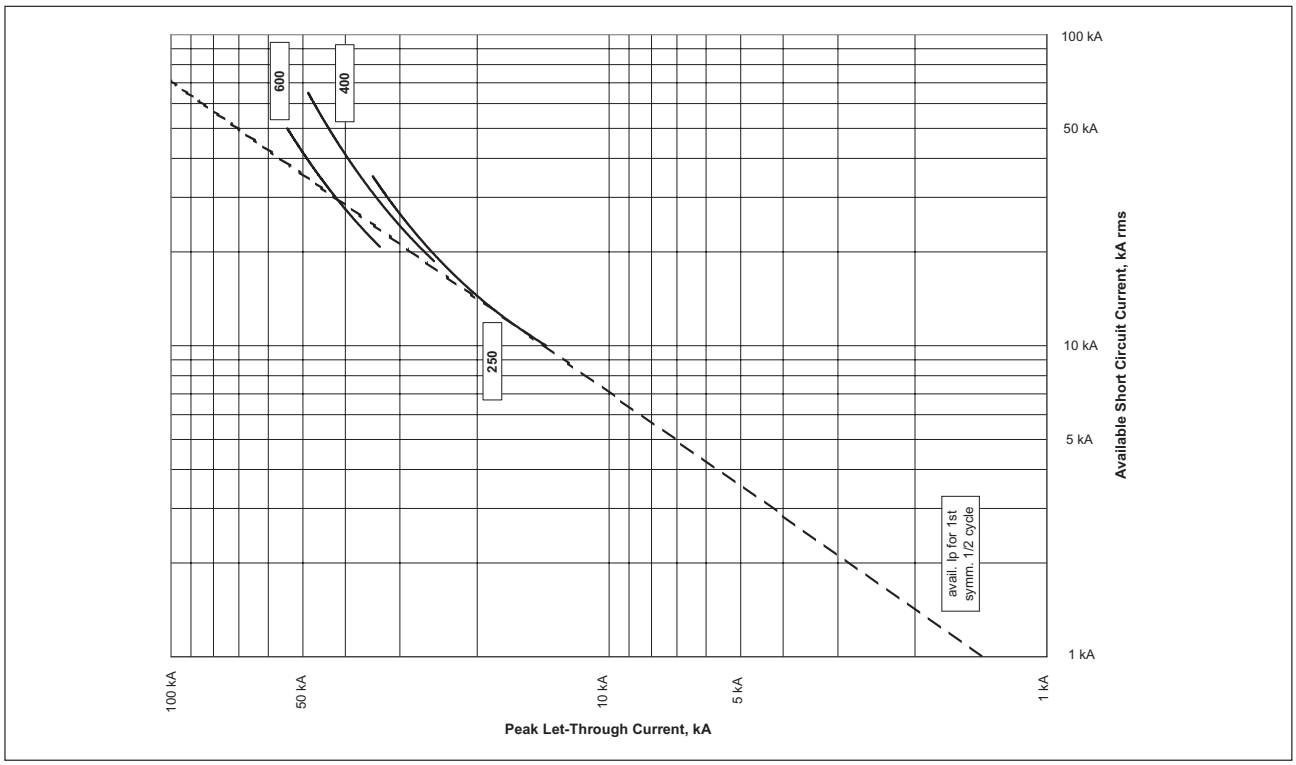
Peak Let-Through I^2t Curve — 240 V



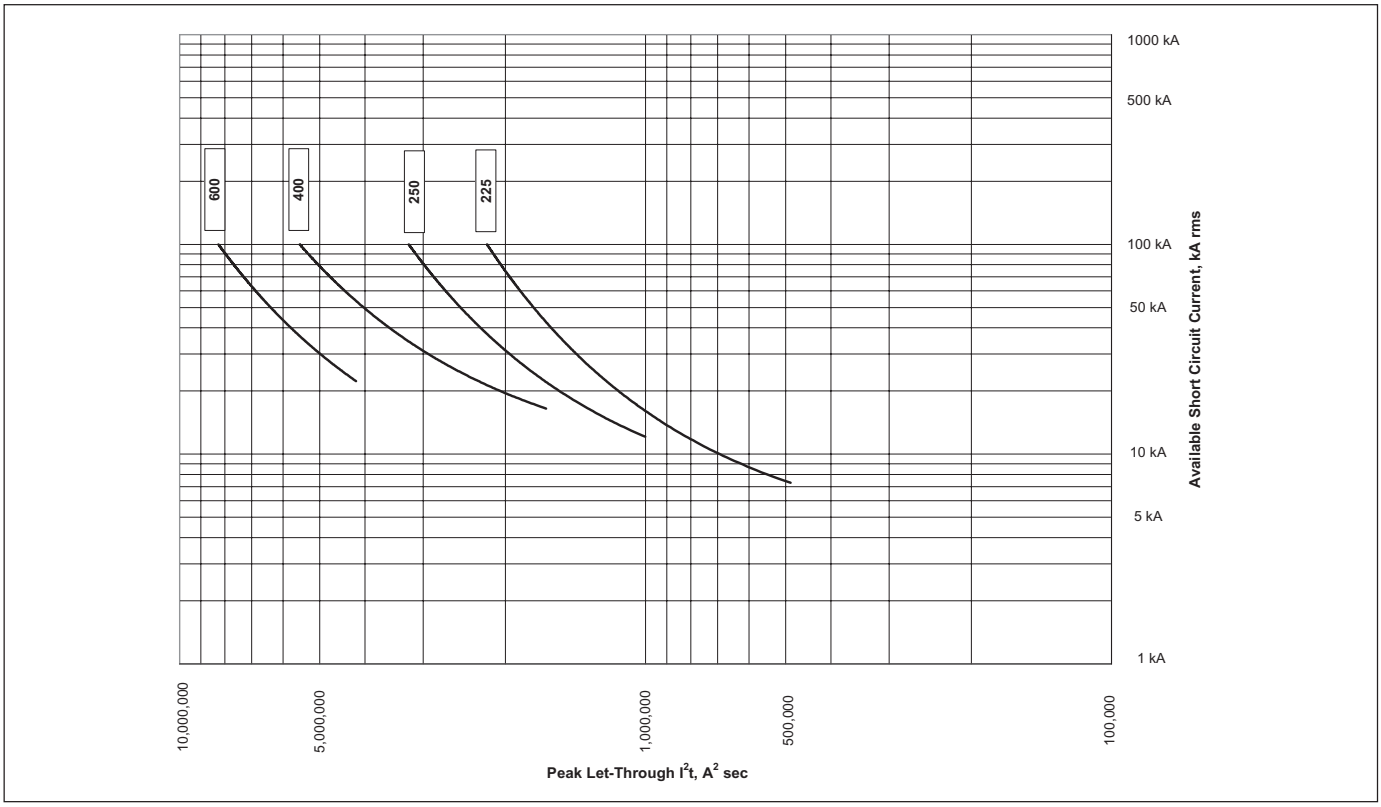
Peak Let-Through Current Curve — 240 V



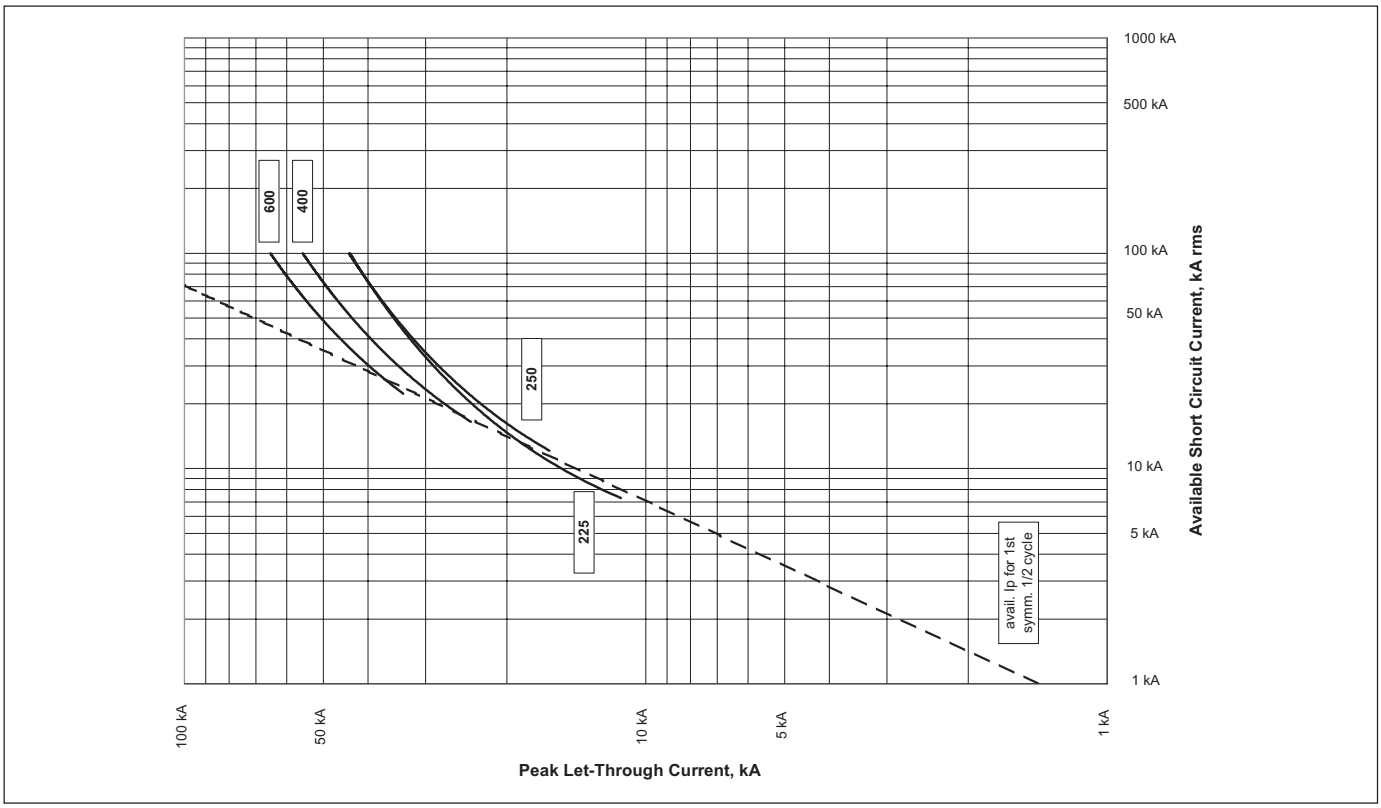
Peak Let-Through I^2t — 600 V



Peak Let-Through Current — 600 V



Peak Let-Through I^2t Curve — 480 V

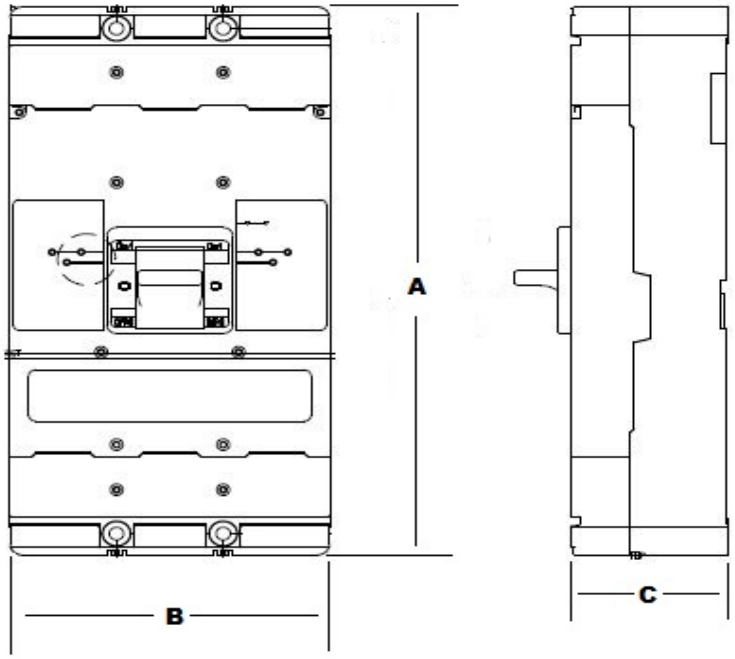


Peak Let-Through Current — 480 V

UBW Dimensions

(Outside)

Frames 225, 250, 400, 600, 800, 1200, 2500

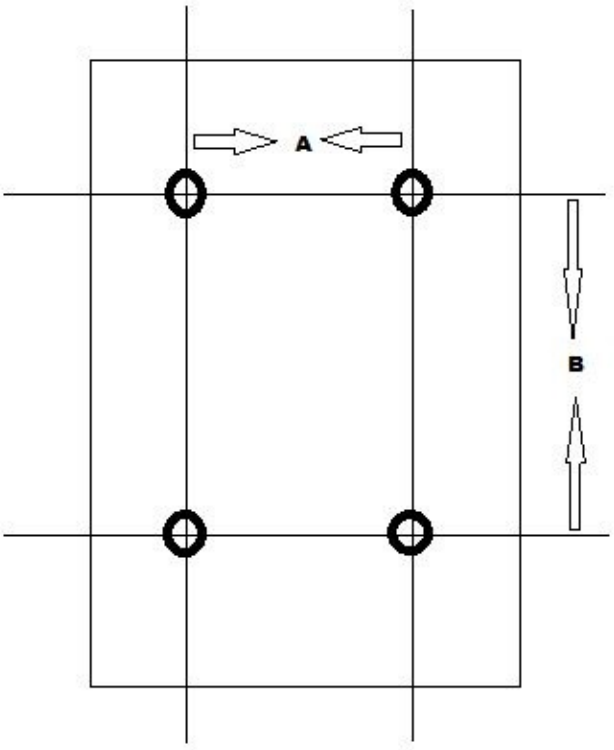


Frame Size	Overall Dimensions		
	A	B	C
	Inches/mm	Inches/mm	Inches/mm
225	6/152	4.1/104	3.5/89
250	10/254	4.1/104	4.3/110
400	10.12/257	5.49/139	4.3/110
600	10.75/273.05	8.25/209.6	4/101.57
800	16/406.4	8.22/208.74	4.06/103.18
1200	16/406.4	8.25/209.55	5.5/139.7
2500	16/406.4	15.5/393.7	9./228.6

Mounting Hardware and Mounting Holes Dimensions

Frame	Qty	Std Bolt Size	Metric Size
225	4	5/32-32	M4x0.70
250	4	1/4-20	M6-1.0
400	4	1/4-20	M6-1.0
600	4	1/4-20	M6-1.0
800	4	1/4-20	M6-1.0
1200*	4	5/16-18	M8-1.25
2500^	4	3/8-16	M11-1.50

^ Supplied with Breaker



Frame	Dimensions	
	A	B
225	1.375(34.93	4.5(114.30)
250	1.375 (34.37	7.25(184.15
400	1.71(43.66)	8.438(214.32
600	8.75(222.25	9.53(242.09
800 (MDL)	2.75(69.85	14.75(374.65
1200	2.75(69.85)	18.45(374.65)
2500	14.50(368.30)	15.00(381.00)