

YASKAWA Braking Unit

CDBR-□□□□B and CDBR-□□□□C to CDBR-□□□□D

Product Transition Guide

Type: CDBR □□□□ B

Models: 200 V Class, Rated Discharge Amps: 15 to 80

400 V Class, Rated Discharge Amps: 15 to 80

600 V Class, Rated Discharge Amps: 15 to 80

Type: CDBR □□□□ C

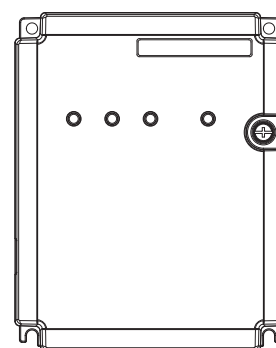
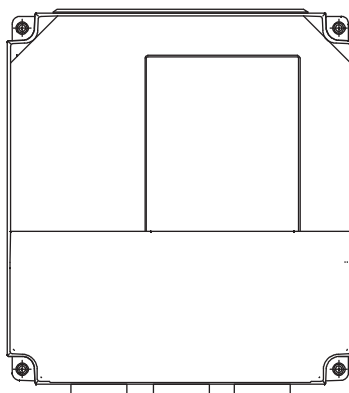
Models: 200 V Class, Rated Discharge Amps: 15 and 20

Type: CDBR □□□□ D

Models: 200 V Class, Rated Discharge Amps: 15 to 24

400 V Class, Rated Discharge Amps: 15 to 18

600 V Class, Rated Discharge Amps: 15



1 Replacing CDBR Spec. B and C with CDBR Spec. D

◆ CDBR-□□□□D Model Features

Table 1 Key CDBR-□□□□D Features and Functions

Smaller installation area. <i>Refer to CDBR Braking Unit Dimensions on page 7</i> for details.	Compliant with UL (RU), CE, RoHS.
CDBR Transistor Short Detection: CDBR braking unit can be protected during braking resistor short circuits.	Prevention of faulty wiring: The main circuit terminal board and control circuit terminal board are separated.
Braking activation voltage level with 10 switching steps: Braking activation voltage can be set with greater precision	

Thoroughly review the instruction manual included with the product. To request a catalog, user manual, pricing, or shipping dates, please visit our website at www.yaskawa.com, call (800) YASKAWA (927-5292), or contact your Yaskawa representative or the nearest Yaskawa sales office.

For technical questions and support or other related information, please contact Yaskawa or a Yaskawa agent.

◆ Applicable Models

Table 2 List of Applicable CDBR Braking Unit Models

Model CDBR- □□□□B	Voltage Class	Max. Motor Capacity kW (HP)	Rated Discharge Amps	Max. Discharge Amps Peak 10% Duty
2015 <1>	200 V	15 (20)	15	40
2022 <1>	200 V	22 (30)	20	60
2045	200 V	45 (60)	30	100
2110	200 V	110 (150)	80	250
4030	400 V	30 (40)	15	40
4045	400 V	45 (60)	18	60
4090	400 V	90 (120)	30	100
4220	400 V	220 (300)	80	250
5037	600 V	37 (50)	15	40
2015	200 V	15 (20)	15	40
2022	200 V	22 (30)	20	60
2045	200 V	45 (60)	30	100
2110	200 V	110 (150)	80	250
4030	400 V	30 (40)	15	40
4045	400 V	45 (60)	18	60
4090	400 V	90 (120)	30	100
4220	400 V	220 (300)	80	250
5037	600 V	37 (50)	15	40
5110	600 V	110 (150)	30	100
5300	600 V	300 (400)	80	250

Model CDBR- □□□□D	Voltage Class	Max. Motor Capacity kW (HP)	Rated Discharge Amps	Max. Discharge Amps Peak 10% Duty
2022	200 V	22 (30)	20	60
2037	200 V	37 (50)	24	80
4030	400 V	30 (40)	15	40
4045	400 V	45 (60)	18	60
5037	600 V	37 (50)	15	40

<1> CDBR-□□□□C model also available.

◆ CDBR Model Number Cross-Reference

■ Application Example: Selecting a New CDBR-□□□□D for Use with A1000 AC Drives

Table 3 shows an example cross-reference that applies the new CDBR-□□□□D models in place of previous CDBR-□□□□B and CDBR-□□□□C models with the A1000 AC drive.

Table 3 CDBR Model Number Cross-Reference Example for Use with A1000 AC Drives

Drive: A1000		Previous Braking Unit CDBR-□□□□B and CDBR-□□□□C		New Braking Unit CDBR-□□□□D		
Voltage Class	Applicable Motor Output Capacity kW (HP)	Model CDBR-□□□□B	Qty	Model CDBR-□□□□D	Braking Resistor Code No. 72600-	Qty
200 V	Under 30 (40)	-	-	Built-in		
	37 (50)	2015 <1>	2	2037D	R2370D	1
		2045	1			
	45 (60)	2022 <1>	2			
	55 (70)	2022 <1>	2	2037D	R2370D	2
400 V	Under 30 (40)	-	-	Built-in	R4450D	1
	37 (50)	4045	1	4045D		
	45 (60)	4045	1	4045D		
	55 (70)	4030	2	4045D		
	75 (100)	4045	2	4045D		
600 V	Under 30 (40)	-	-	Built-in	R5370D	1
	37 (50)	5037	1	5037D		
	45 (60)	5037	2	5037D		
	55 (70)	5037	2	5037D		

<1> CDBR-□□□□C model also available.

◆ Front View Comparison

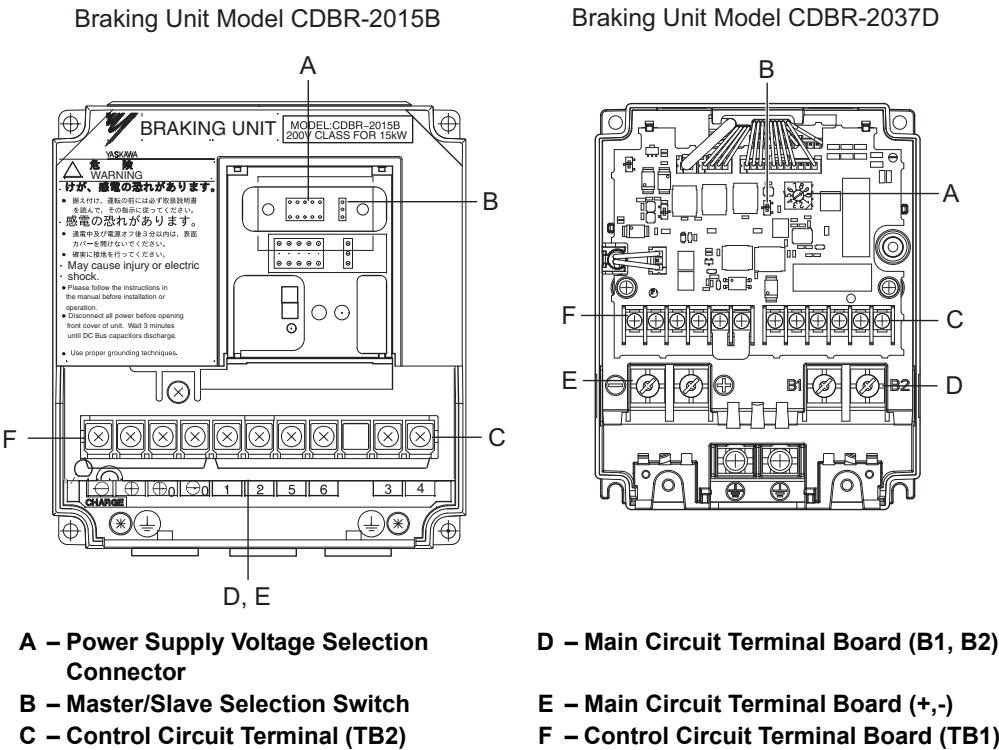


Figure 1 CDBR-□□□□B to CDBR-□□□□D Front View

◆ CDBR Terminal and Wire Gauge Cross-Reference

The size and designation of some terminals differs between the new CDBR braking unit and previous models. Refer to [Table 4](#), [Table 5](#), and [Table 6](#) for details.

Table 4 Main Circuit Terminals

Braking Unit Model CDBR-□□□□	
B and C	D
$\ominus$	$\ominus$
$\oplus$	$\oplus$
$\oplus_0$	B1
$\ominus_0$	B2
$\oplus$	$\oplus$

Table 5 Control Circuit Terminals

Braking Unit CDBR-□□□□B Terminal	Function	Braking Unit CDBR-□□□□D Terminal	Function
1	Slave Input	IN1	Input the signal when using CDBR braking units in parallel.
2		IN2	
3	Cooling Fin Overheat Contact Output	MA, MB, MC	Relay output the signal when a fault occurs or when SB-SC is closed (default). (Example: CDBR braking unit overheating, LKEB braking resistor unit short circuit detection, external fault)
4			
5	Master Output	OUT1	Output the signal when using CDBR braking units in parallel
6		OUT2	
-	-	SB/SC	Enable/Disable contact input to disable the CDBR and activate MA-MB-MC fault contact output.
-	-	EA/EB/EC	Relay output the signal when LKEB braking resistor unit short circuit or CDBR braking unit fault is detected. Wiring sequence should shut off power to the drive when the signal is output.

1 Replacing CDBR Spec. B and C with CDBR Spec. D

Table 6 Wire Gauges and Torque Specifications

Model CDBR-□□□□	Circuit	Terminal No.	Screw Size	Tightening Torque N.m (lb-in)	Applicable Gauge mm ² (AWG)	Recomm. Gauge mm ² (AWG)
2015B <1> 2022B <1> 4030B 4045B 5037B <2>	Main Circuit	  0	M4	1.50 (13.3)	3.5-5.5 (12-10)	-
	Control Circuit	1 2 3 4 5 6	M4	2.45 (21.7)	0.75-2 (18-14)	-
2045B 4090B 5110B <2>	Main Circuit	  0	M5	2.45 (21.7)	5.5-8 (10-8)	-
	Control Circuit	1 2 3 4 5 6	M4	1.76 (15.6)	0.75-2 (18-14)	-
2110B 4220B 5300B <2>	Main Circuit	  0	M6	4.90 (43.4)	22 (4) 8-14 (8-6) <3>	-
	Control Circuit	1 2 3 4 5 6	M4	1.76 (15.6)	0.75-2 (18-14)	-
The terminal sizes and positions of the new CDBR braking unit are not directly compatible with previous models.						
2037D 4045D 5037D	Main Circuit	 ,  B1, B2	M5	2.7-3.0 (23.9-26.6)	5.5-8 (10-8)	5.5
	Control Circuit	IN1, IN2 OUT1, OUT2 SB, SC, MA, MB, MC EA, EB, EC	M3.5	0.8-1.0 (7.1-8.9)	0.75-2 (18-14)	0.75
	Main Circuit		M5	2-2.5 (17.7-22.1)	8 (8)	8

<1> CDBR-□□□□C model also available.

<2> Models CDBR-5037B, 5110B, and 5300B can reach an operating voltage of 1040 Vdc. Select wire that is suitable for the operating voltage.

<3> For 8-6 (8-14) wire size, use UL 1283 heat resistant vinyl insulated copper wire or equivalent.

◆ Dimensions and Retrofit Attachments

Table 7 CDBR Braking Unit Dimensions

Previous Model CDBR-□□□□
2015B, 2022B, 4030B, 4045B
Technical drawing of the Previous Model CDBR-2015B, 2022B, 4030B, 4045B. The drawing shows front and side views with dimensions in inches (in.) and millimeters (mm). Key features include: 4-M4 MTG HOLE 3-LEAD WIRE OUTLET [0.87 (20) DIA RUBBER BUSH] - Dimensions: 1.18 (30) OR MORE, 5.04 (128), 5.51 (140), 5.43 (138), 5.91 (150), 2.83 (72), 2.73 (66.5), 3.94 (100) OR MORE, 4.51 (114.5), 5.45 (138.5). in. (mm)
Previous Model CDBR-5037B
Technical drawing of the Previous Model CDBR-5037B. The drawing shows front and side views with dimensions in inches (in.) and millimeters (mm). Key features include: 4-M6 MTG HOLE - MAIN CIRCUIT TERMINAL M4 3-LEAD WIRE OUTLET 1.10 (28) DIA RUBBER BUSH - Dimensions: 0.39 (10), 1.14 (29), 3.94 (100), 11.02 (280), 10.23 (260), 9.25 (235), 2.19 (55.5), 1.97 (50), 3.94 (100), 5.51 (140), 1.18 (30) OR MORE, 1.18 (30) OR MORE, 6.57 (167), 3.94 (100) OR MORE. in. (mm)
Replacement Model CDBR-2022D, 2037D, 4030D, 4045D, 5037D
Technical drawing of the Replacement Model CDBR-2022D, 2037D, 4030D, 4045D, 5037D. The drawing shows front and side views with dimensions in millimeters (mm) and inches (in.). Key features include: 4-M5 - Dimensions: 105 (4.13), 120 (4.72), 7 (0.28), 136 (5.35), 150 (5.91), 157 (6.18), 49.6 (1.95), 6 (0.24). mm (in.)

1 Replacing CDBR Spec. B and C with CDBR Spec. D

Retrofit Attachment

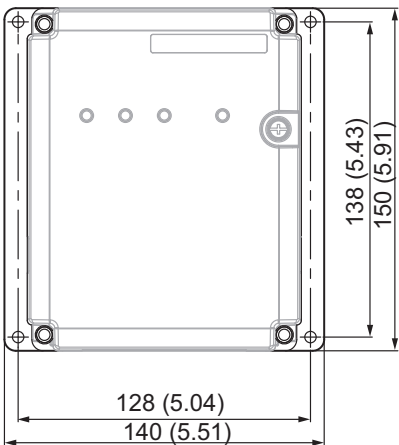
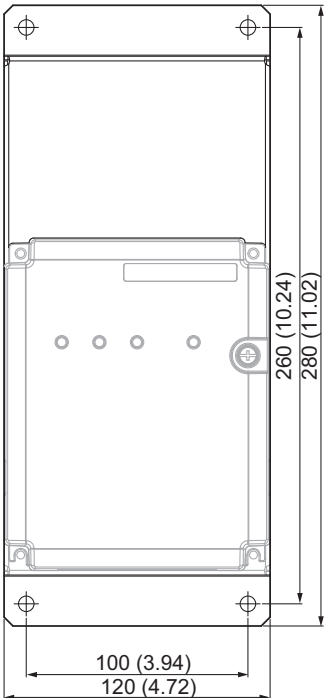
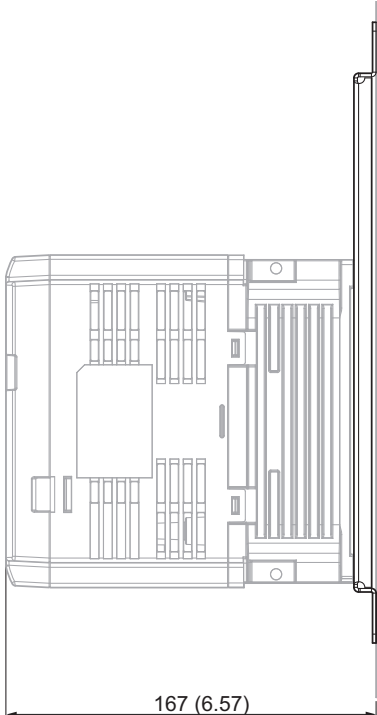
A retrofit attachment is required when replacing a CDBR-□□□□B model with a CDBR-□□□□D model because the mounting dimensions differ. Refer to [Table 7](#) for the dimension differences between CDBR-□□□□B and CDBR-□□□□D.

When replacing a CDBR-□□□□B model with a 200 V or 400 V CDBR-□□□□D, use retrofit attachment code 100-066-354 (EZZ021710A).

When replacing a CDBR-□□□□B model with a 600 V CDBR-□□□□D, use retrofit attachment 100-066-478 (EZZ021710B).

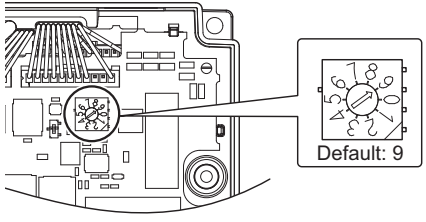
Refer to [Table 8](#) for dimensions of the retrofit attachments.

Table 8 Retrofit Attachment Dimensions

For CDBR-2022D, 2037D, 4030D, and CDBR-4045D	
	
mm (in.)	
For CDBR-5037D	
	
mm (in.)	

◆ Power Supply Voltage Selection Connector Setting

Table 9 Power Supply Voltage Selection Connector

Model CDBR-□□□□					
B and C			D		
200 V Class		400 V Class			
200V		380V			
208V		400V			
220V		415V			
230V		440V			
		460V		575V	

The new CDBR braking unit can set the braking activation voltage level more precisely than previous models.

Table 10 Power Supply Voltage Selection Connector and Braking Activation Voltage Models CDBR-□□□□B

200 V		400 V		600 V	
Power Supply Voltage <1>	Braking Activation Voltage (PN Bus-bar Voltage)	Power Supply Voltage <1>	Braking Activation Voltage (PN Bus-bar Voltage)	Power Supply Voltage <1>	Braking Activation Voltage (PN Bus-bar Voltage)
230 V	380 V (TYP)	460 V	760 V (TYP)	575 V	950 (TYP)
220 V	365 V (TYP)	440 V	730 V (TYP)	-	-
208 V	345 V (TYP)	415 V	690 V (TYP)	-	-
200 V	330 V (TYP)	400 V	660 V (TYP)	500 V	825 V (TYP)
-	-	380 V	630 V (TYP)	-	-

<1> Allowable voltage fluctuation is +/- 10%.

Table 11 Power Supply Voltage Selection Connector and Braking Activation Voltage Models CDBR-□□□□D

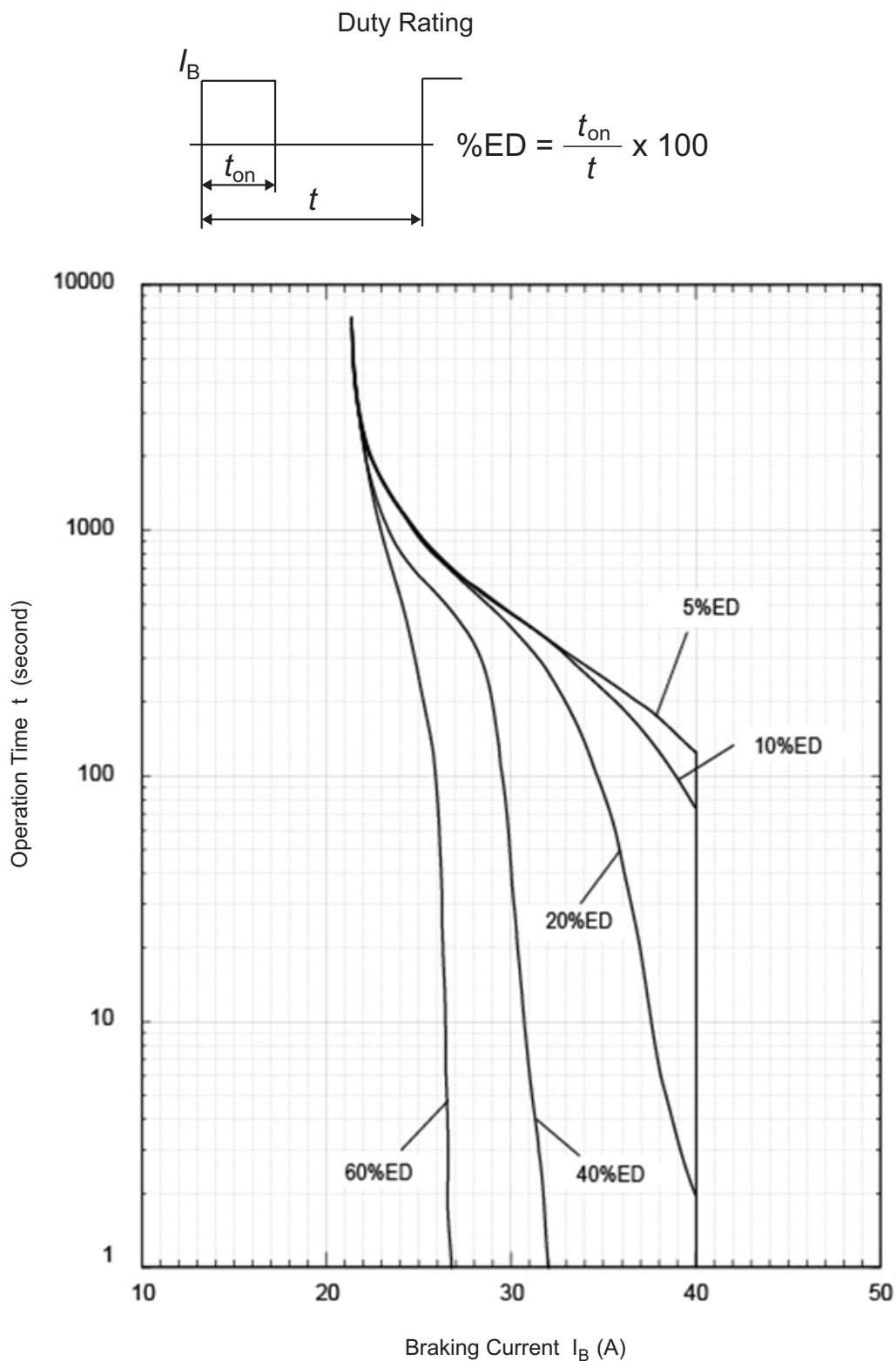
Setting	200 V		400 V		600 V	
	Power Supply Voltage <1>	Braking Activation Voltage (PN Bus-bar Voltage)	Power Supply Voltage <1>	Braking Activation Voltage (PN Bus-bar Voltage)	Power Supply Voltage <1>	Braking Activation Voltage (PN Bus-bar Voltage)
0	160 V	270 V (TYP)	380 V	630 V (TYP)	500 V	825 V (TYP)
1	170 V	282 V (TYP)	390 V	644 V (TYP)	505 V	839 V (TYP)
2	175 V	294 V (TYP)	400 V	659 V (TYP)	515 V	853 V (TYP)
3	185 V	307 V (TYP)	405 V	673 V (TYP)	525 V	867 V (TYP)
4	190 V	319 V (TYP)	415 V	688 V (TYP)	530 V	881 V (TYP)
5	200 V	331 V (TYP)	425 V	702 V (TYP)	540 V	894 V (TYP)
6	208 V	343 V (TYP)	430 V	717 V (TYP)	550 V	908 V (TYP)
7	215 V	356 V (TYP)	440 V	731 V (TYP)	555 V	922 V (TYP)
8	220 V	368 V (TYP)	450 V	746 V (TYP)	565 V	936 V (TYP)
9 (Default)	230 V	380 V (TYP)	460 V	760 V (TYP)	575 V	950 V (TYP)

<1> Allowable voltage fluctuation is +/- 10%.

◆ Overcurrent Resistance

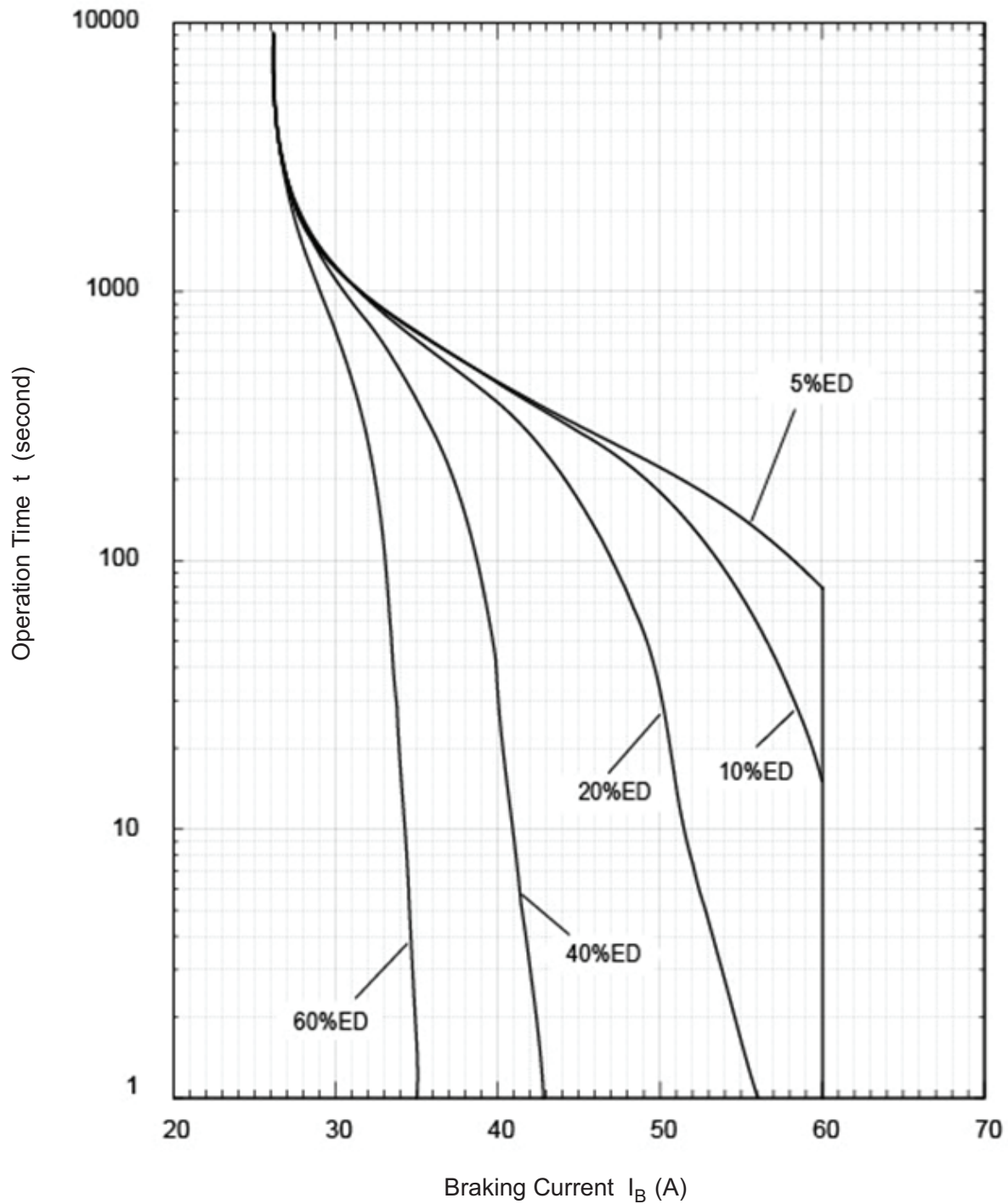
■ CDBR-2015B

The braking time and braking current should remain on the left side of the %ED curve. If either value exceeds the specified range, the braking unit will malfunction.



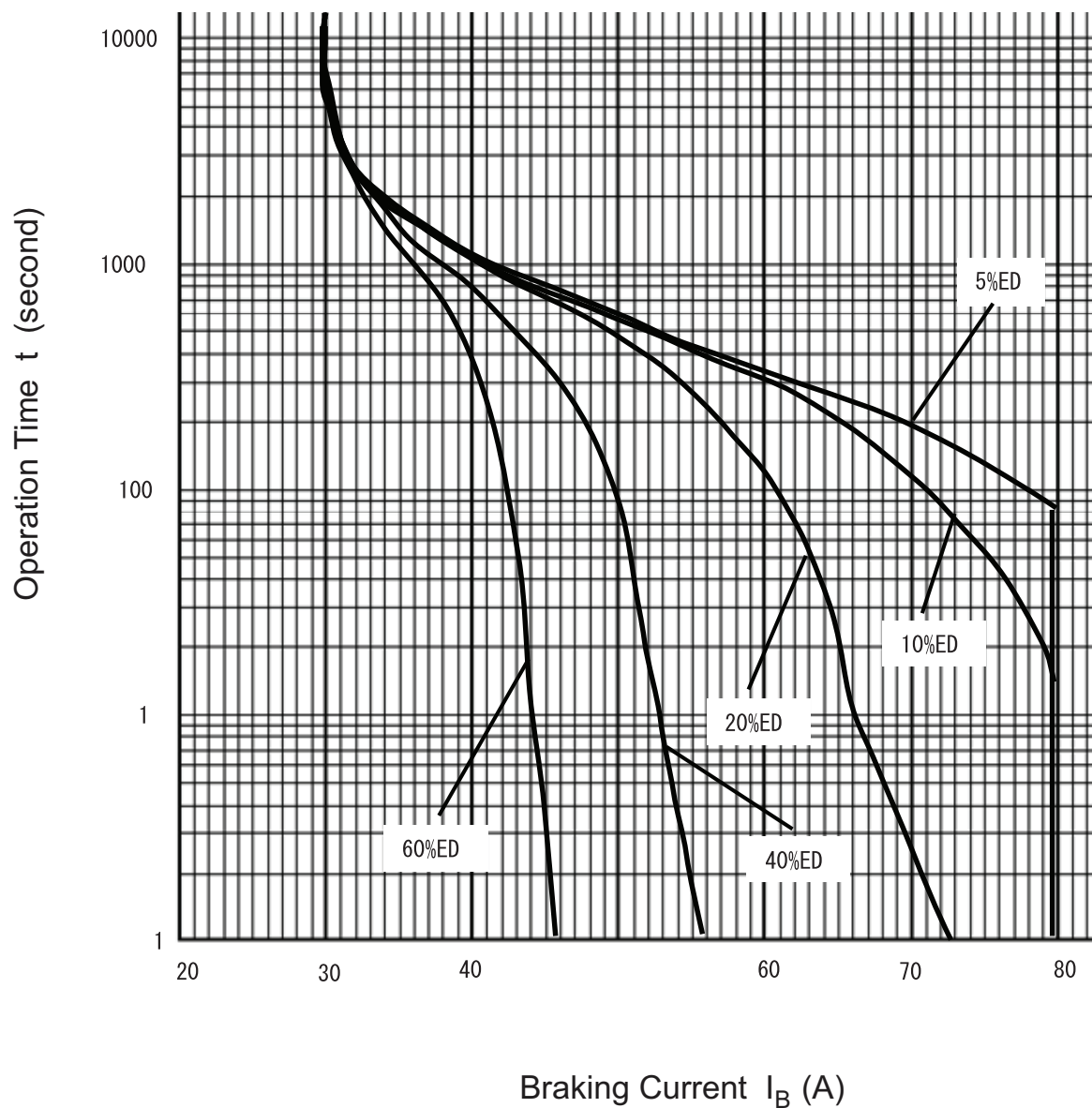
■ CDBR-2022B

The braking time and braking current should remain on the left side of the %ED curve. If either value exceeds the specified range, the braking unit will malfunction.



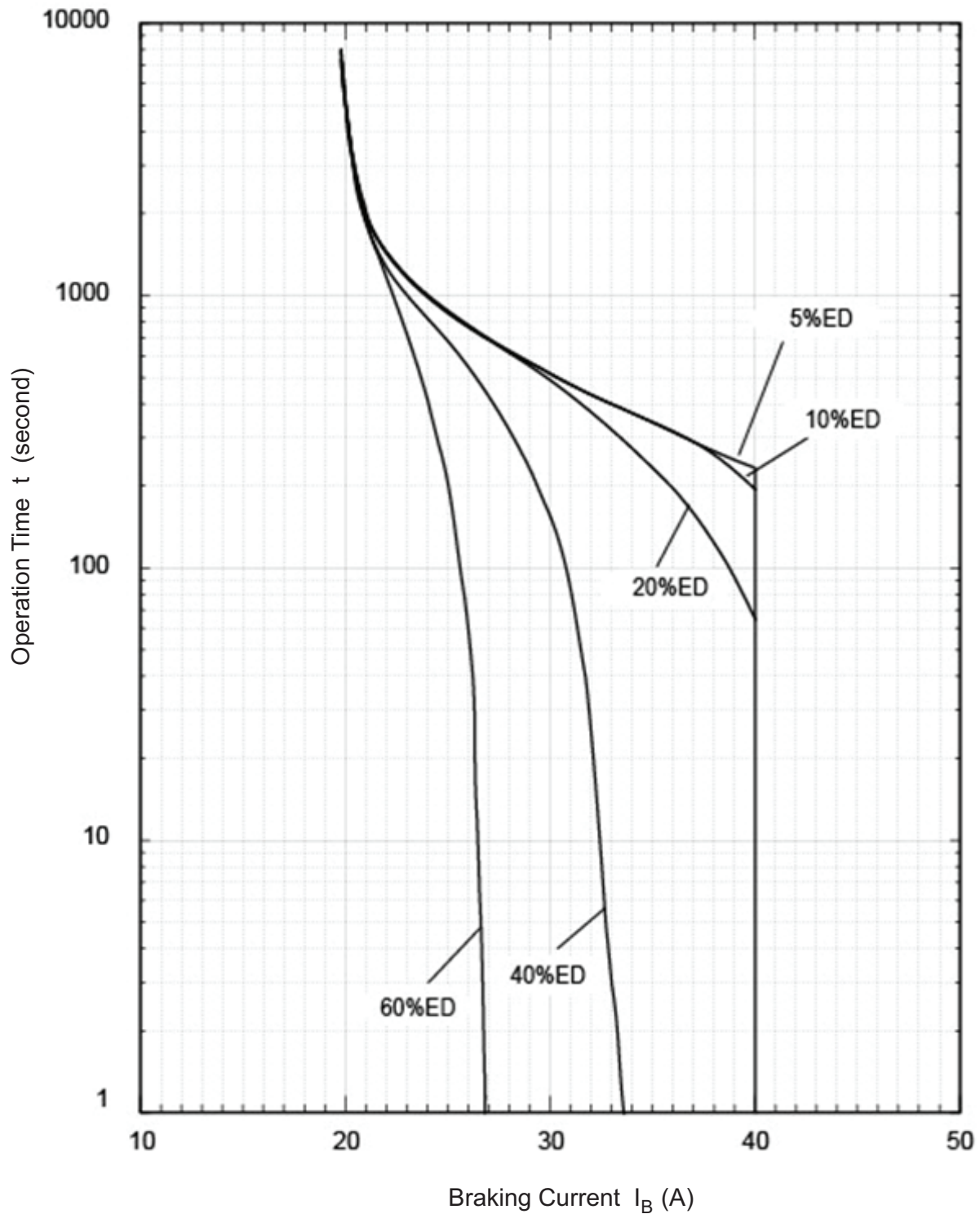
■ CDBR-2037D

The braking time and braking current should remain on the left side of the %ED curve. If either value exceeds the specified range, the braking unit will malfunction.



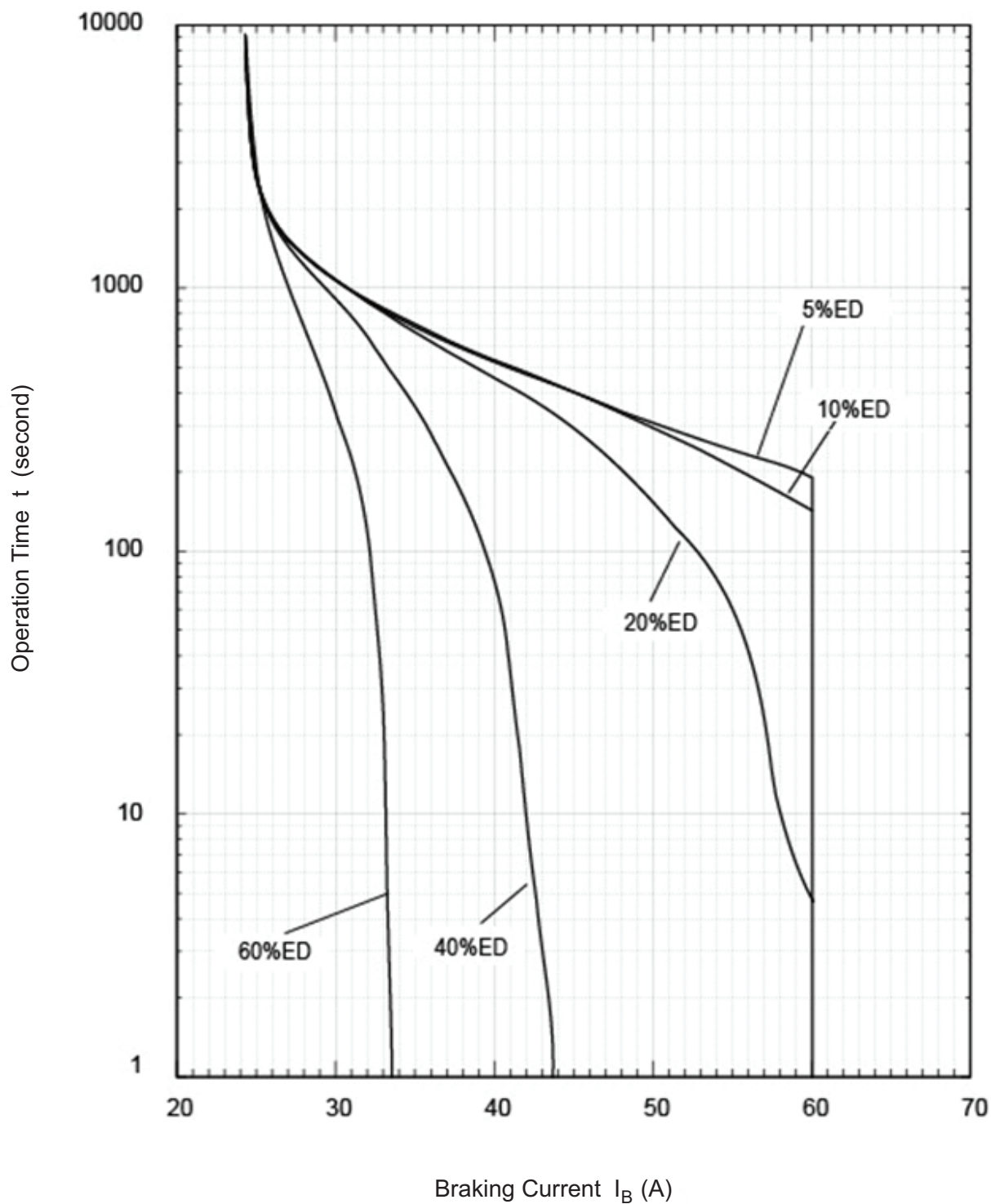
■ CDBR-4030B

The braking time and braking current should remain on the left side of the %ED curve. If either value exceeds the specified range, the braking unit will malfunction.



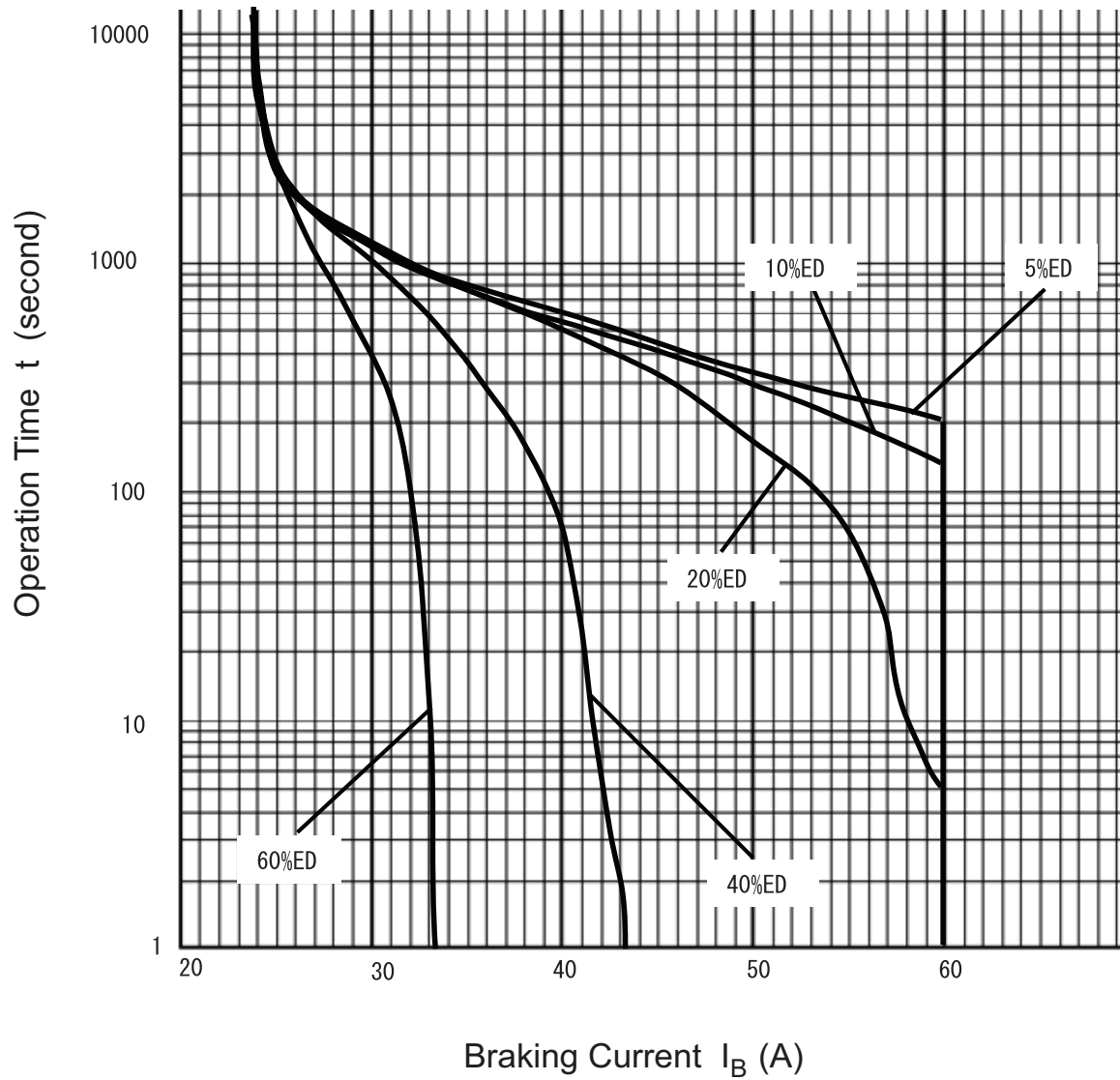
■ CDBR-4045B

The braking time and braking current should remain on the left side of the %ED curve. If either value exceeds the specified range, the braking unit will malfunction.



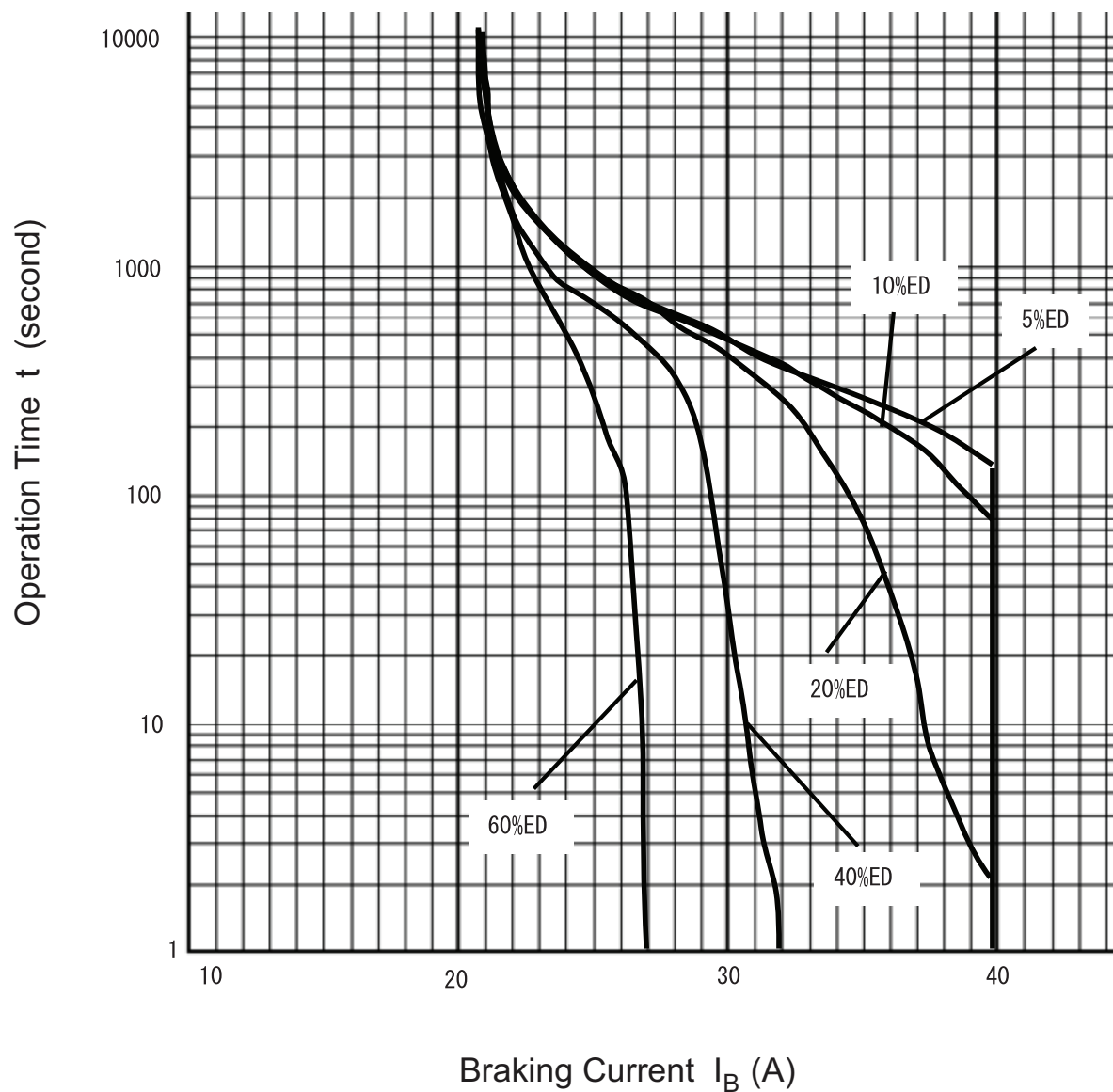
■ CDBR-4045D

The braking time and braking current should remain on the left side of the %ED curve. If either value exceeds the specified range, the braking unit will malfunction.



■ CDBR-5037D

The braking time and braking current should remain on the left side of the %ED curve. If either value exceeds the specified range, the braking unit will malfunction.



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YASKAWA AMERICA, INC.

In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply.

Specifications are subject to change without notice for ongoing product modifications and improvements.

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