

D-Frame Series Circuit Breakers

Features

- Hydraulic-Magnetic Technology
- 100% Rating Capability Independent of Ambient Temperature
- Up to Six Poles
- cULus, VDE and CE Approved
- Ratings up to 250A
- Optional Trip Alarm Switch and Auxiliary Switch
- Wide Range of Circuits, Mountings, Terminations and Time Delays Available
- Optional Mid Trip Indication
- Two Colour Handle Indication (Two Tone Flush Rocker)

Applications

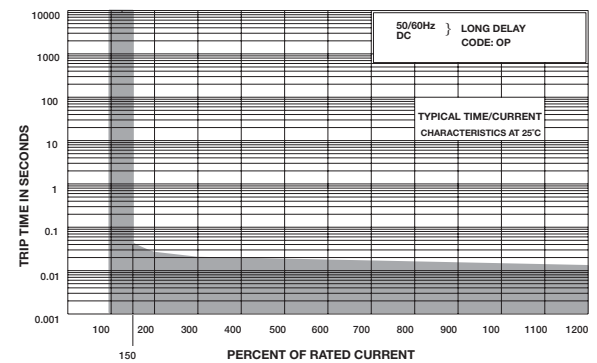
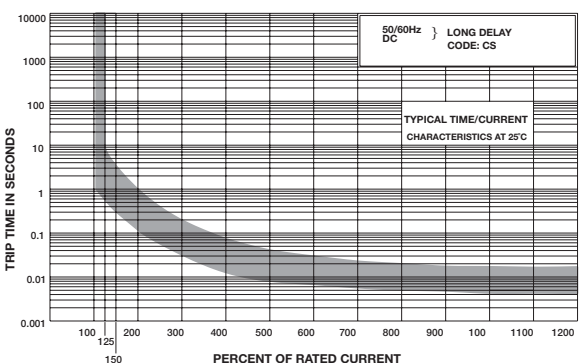
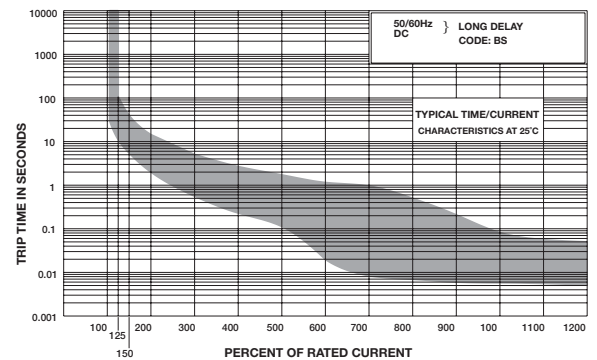
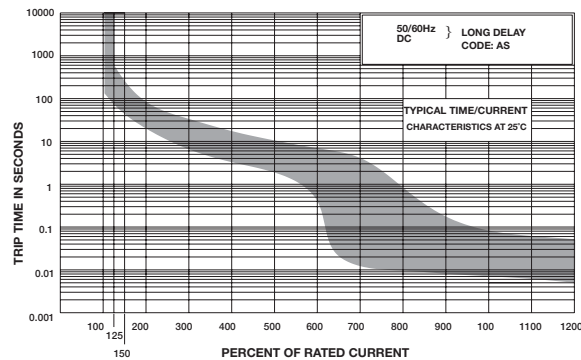
- AC and DC Branch Circuit Installations
- Telecom DC Power Distribution
- UPS Equipment
- Mobile Power-Generation Equipment
- Power Conditioning
- Alternative Energy Equipment
- Lighting Control
- Marine Protection



Technical Data

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	cULus 489	CE, VDE (EN 60947-2)	UL489A, CE, VDE (EN60947-2)
Number of Poles	1, 2	1, 2	1, 3 (Parallel)
Operating Voltages	120 V AC, 80V DC, 120/240V AC	240V AC, 80V DC	80V DC
Current Ratings	0.1 – 80A AC, 100A DC (1p), 0.1 – 50A (2p)	0.1 – 50A AC, 0.1 – 100A DC 5kA	110 – 250A 10kA
Interrupting capacity	10kA, 5kA (2p)		
Product Type	Switch	Circuit Breaker	Circuit Breaker
Approvals	cULus 508, CE, VDE (EN60947-3)	cURus 1077	CE, VDE (EN 60934)
Number of Poles	1, 2	1 to 6	1 to 4
Operating Voltages	120V AC, 120/240V AC	80V DC, 277V AC, 277/480 V AC	80V DC, 240V AC, 240/415V AC
Current Ratings	50A	0.02 – 100A (1p), 0.02 – 70A (2-6p)	0.01 – 100A (1p), 0 – 70A (2-4p)
Interrupting capacity	600 A (For 1 sec)	2kA AC, 5kA DC	3kA AC, 5kA DC
Vibration Resistance		10G to MIL-STD-202F Method 204D Test A	
Shock Resistance		100G to MIL-STD-202F Method 213B Test A	
Operating Temperature Range		-40°C to +85°C	

Preferred Standard Delays



D-Frame Series Circuit Breakers

Long Code

Code	Description	Comments					
Group 0: Frame							
D	D-Frame						
Group 1: Type							
Code Description		Comments					
1	D-Frame D – Type	UL Recognized approvals only					
2	D-Frame DD –Type	UL Listed and UL recognized approvals					
Group 2: Mounting							
Code Description		Comments					
A	Front mount rectangular aperture toggle handle type	See figure 1.1					
B	Snap-in mount edges flush	See figure 1.2, available on D-Type only					
D	Centre lock mounting	See figure 1.3, available on D-Type only					
S	Front mount rectangular aperture flush rocker handle type	See figure 1.4, available on DD-Type only					
Z	Special specify						
Group 3: Handle or Pole Blank (Reduced Handle)							
Code Description		Comments					
A	Standard handle	See figure 2.1; for mountings A, B					
B	Short handle	See figure 2.2; for mountings A, B; D-Type only					
C	Cut off handle	See figure 2.3; for mountings A, B; only 1 handle per unit					
D	Paddle handle	See figure 2.4; for mounting D; only 1 handle per unit					
E	Baton handle	See figure 2.5; for mounting D; only 1 handle per unit					
H	Flush rocker handle	See figure 2.6; for mounting S; only 1 handle per unit					
M	Two tone flush rocker handle	See figure 2.7; for mounting S; only 1 handle per unit					
W	No handle, Blank front plate, D-frame type	For reduced handle version, on pole without handle					
2	Standard handle, mid trip	See figure 2.8; for mountings A, B					
5	Flush rocker handle, mid trip pull to reset	See figure 2.9; for mounting S; only 1 handle per unit					
6	Two tone flush rocker handle, mid trip pull to reset	See figure 2.10; for mounting S; only 1 handle per unit					
Z	Special specify						
Group 4: Main Terminal Description							
Code Description		Comments					
AX	M5 or 10-32 stud	See figure 3.1; 60A max.					
BX	Clamp terminal M3 or 6-32	See figure 3.2; 30A max.; D-Type only					
CX	Rear quick connect terminal (0.8mm X 6.35mm)	See figure 3.3; 25A max.; D-Type only					
MX	M6 or 1/4-20 stud terminals	See figure 3.4; 100A max.					
2X	Plug in terminal (Ø6.25mm X 21.5mm)	See figure 3.5; 50A max.					
3X	Plug in terminal (Ø7.80mm X 21.5mm)	See figure 3.6; 100A max.					
4X	M5 or 10-32 flush rear screw terminal	See figure 3.7; 50A max.; DD-Type only					
VI	Bridge terminal for 2 pole parallel construction	See figure 3.8 200A max.; DD-Type only					
WI	Bridge terminal for 3 pole parallel construction	See figure 3.9; 250A max.; DD-Type only					
XX	No Terminal						
ZZ	Special specify						
Group 5: Number of Poles							
Code Description		Code Description					
1	1 pole metric	A 1 pole imperial					
2	2 pole metric	B 2 pole imperial					
3	3 pole metric	C 3 pole imperial					
4	4 pole metric	D 4 pole imperial					
5	5 pole metric	E 5 pole imperial					
6	6 pole metric	F 6 pole imperial					
Group 6: Rated Voltage and Frequency							
Code Description		Comments					
J	240V 50/60Hz	Common bus at 240V					
K	277V 50/60Hz	Common bus at 277V					
N	80V DC						
S	120/240V 50/60Hz	3 wire centre tap supply, 120V per phase					
Q	240/415V 50/60Hz	3 Phase multi wire system					
R	277/480V Hz	3 Phase multi wire system					
M	80V DC / 240V 50/60z	AC/DC version only with AC and DC curves					
L	80V DC / 277V 50/60Hz	AC/DC version only with AC and DC curves					
Z	Special specify						
Group 7: Time Delay (For details of time delay refer to the application guide or web site)							
Code	Description	System	Pulse Tolerance	Code	Description	System	Pulse Tolerance
AS	Long delay	AC or DC	8 x In	CE	CH & inertia wheel	AC	35 x In
A1	AS & inertia wheel	AC or DC	20 x In	US	Ultra short time delay	AC or DC	None
AH	Long delay, high inrush	AC	20 x In	OP	Instantaneous trip	AC or DC	None
AE	AH & inertia wheel	AC	35 x In	AD	Long delay, Dual rated	AC and DC	8 x In
BS	Medium delay	AC or DC	8 x In	BD	Medium delay, Dual rated	AC and DC	8 x In
BI	BS & inertia wheel	AC or DC	20 x In	CD	Short delay, Dual rated	AC and DC	8 x In
BH	Medium delay, high inrush	AC	20 x In	AW	AD & inertia wheel, Dual	AC and DC	20 x In
BE	BH & inertia wheel	AC	35 x In	BW	BD & inertia wheel, Dual	AC and DC	20 x In
CS	Short delay	AC or DC	6 x In	CW	CD & inertia wheel, Dual	AC and DC	15 x In
CI	CS & inertia wheel	AC or DC	15 x In	OX	Switch (series V coil)		
CH	Short delay, high inrush	AC	15 x In	ZZ	Special specify		
H3	Short delay	AC or DC	6 x In				
Group 8: Main Circuit Current (Example only, any ampere rating possible)							
Code Description							
050M	50mA						
0100	1A						
1000	10A						
5000	50A						
K100	100A						
XXXX	No current, for voltage trip poles						
Group 9: Circuit Configuration							
Code Description		Comments					
AX	Switch						
BX	Series trip						
CX	Relay trip Current sensing, centre terminal construction	50A max for the sensing coil; total current 100A max					
DX	Relay trip Voltage sensing, centre terminal construction						
EX	Shunt trip current sensing, 3rd terminal close to load side	Total load 100A maximum					
FX	Shunt trip voltage sensing, 3rd terminal close to load side						
GX	Dual control shunt trip construction, 3rd terminal close to load side	Voltage coil normally at line voltage; No AH, BH, CH, AE, BE, CE					
HX	Dual control - relay trip construction (4 terminal)	No AH, BH, CH, AE, BE, CE					
JX	Switch with auxiliary switch						
KX	Series trip, with auxiliary switch						
LX	Series trip, with trip-alarm	Trip alarm requires mid trip handle					
ZZ	Special specify						
Group 10: Auxiliary and Alarm Switches							
Code Description		Comments					
A	One change over gold tips, equally spaced terminals	0.02 to 0.1A Max 30V					
B	One change over silver plated tips, equally spaced terminals						
M	Integrated micro switch housing, silver tips	Required for parallel bridged DD-Type on last pole. See figure 3.8 and 3.9					
X	Not applicable	No auxiliary switch - Flat base plate					
Z	Special specify						

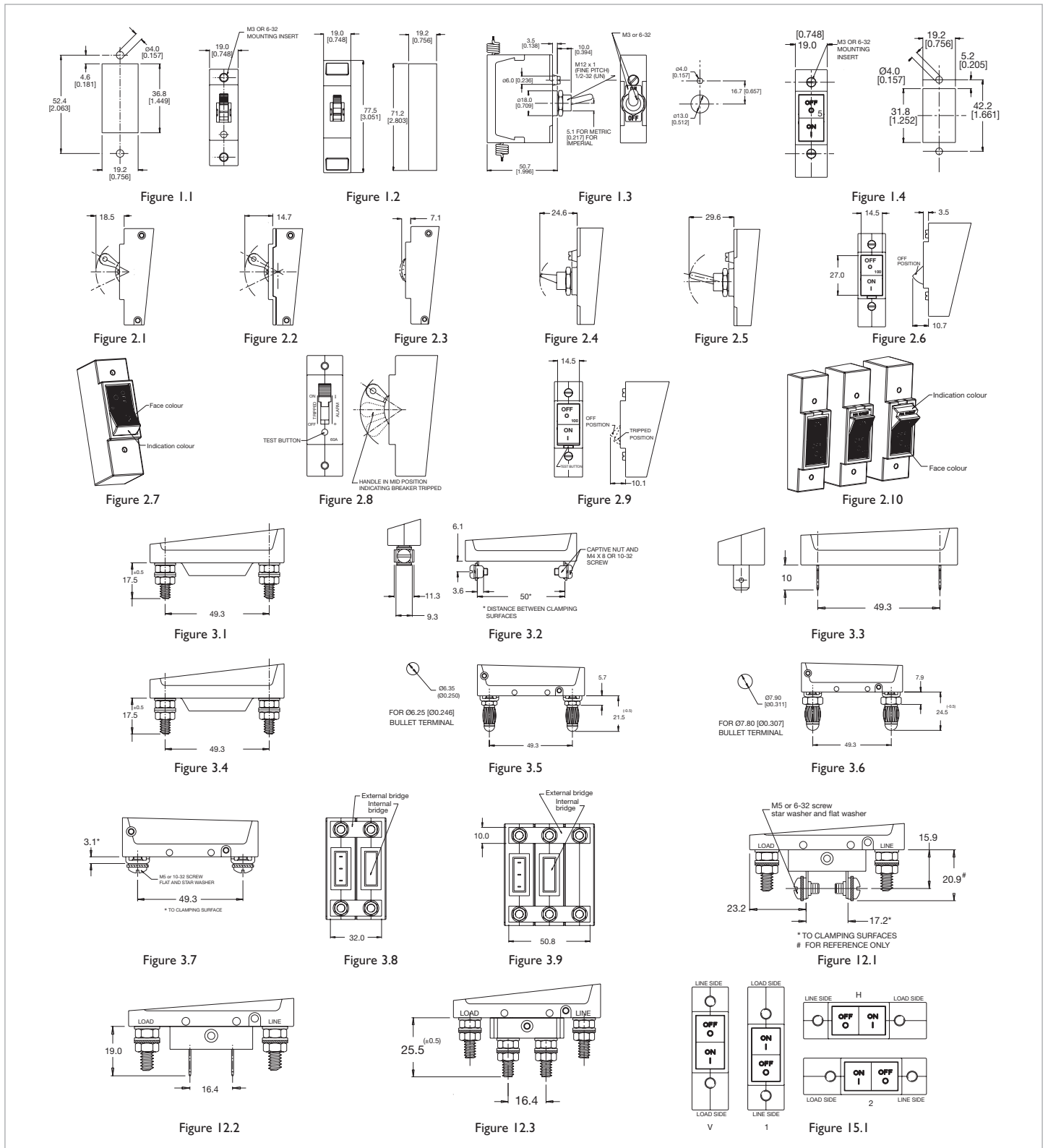
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Long Code			
Group 11: Dual control/ Relay trip Voltage and Current coil ratings	Code	Description	Code Description
	A4	110-125V AC 50/60Hz	C1 20mA
	A5	220-240V AC 50/60Hz	C2 100mA
	B0	12V DC	C3 1A
	B1	24V DC	XX Not applicable
	B2	48V DC	ZZ Special specify
B3	80V DC		
Group 12: Terminals for Shunt, Relay and Dual control construction	Code	Description	Comments
	B	M5/10-32 screw terminal	Figure 12.1; 50A max.
	C	Quick connect terminal	Figure 12.2; 25A max.
	E	M5 studs terminal	Figure 12.3; 60A max.
	X	Not applicable	
	Z	Special specify	
Group 13: Voltage for Illuminated Rocker	Code	Description	Note
	Z	Special specify	
	X	Not applicable	
Group 14: Terminal for Illuminated Rocker	Code	Description	For illuminated handle versions please contact your nearest CBI office for assistance.
	Z	Special specify	
	X	Not applicable	
Group 15: Handle colour	Code	Description	Note
		For toggle handle type	
	G	Green with white marking	The coding is dependent on the type of handle. For all handles, excluding the flush rocker and two tone flush rocker handles, the colour code describes the colour of the handle. For the flush rocker handle the colour code describes the colour of the on and off actuation buttons by a single code. The two tone handle the colour code describes the indication colour. The face colour is black and the indicator indicates the off or tripped position (see figure 2.7). After selecting the appropriate colour code select the marking code. The marking colour of the two tone handle is equivalent to the indicator colour. After selecting the appropriate marking, the direction of print may be specified. For the toggle handle types only codes V and H are applicable (see figure 15.1). If the pole has no handle because of it being a reduced handle version use code XXX.
	W	White with black marking	
	B	Black with white marking	
	4	Blue with white marking	
	Y	Yellow with black marking	
	R	Red with white marking	
		For flush rocker handle	
	W	White (On) / white (Off) black marking	
	B	Black (On) / black (Off) white marking	
	G	Green (On) / red (Off) white marking	
		For two tone rocker handle	
	W	Black face / white indicator + marking	
	R	Black face / red indicator + marking	
G	Black face / green indicator + marking		
X	No handle		
Z	Special specify		
Group 16: Handle Marking	Code	Description	
	A	No marking	
	B	I - 0	
	C	ON - OFF	
	D	I - 0 and ON - OFF	
	E	Ampere rating	
	F	I - 0 and ampere rating	
	G	ON-OFF and ampere rating	
	H	I-0 and ON-OFF and ampere rating	
	X	No Handle	
	Z	Special specify	
Group 17: Handle Orientation	Code	Description	Comments
	V	Vertical	See figure 15.1 The diagram only shows the flush rocker printing, which has the opposite printing position (ON/OFF) to other handle types if the breaker needs to be reverse fed then the printing will be upside down and codes 1 and 2 should be selected.
	H	Horizontal	
	1	Vertical 1	
	2	Horizontal 2	
	X	No handle	
Z	Special specify		
Group 18: Front plate colour and marking options	Code	Description	Comments
	A	Black front plate standard marking	I-0, ON-OFF and Amp rating
	2	Black front plate no marking, with test button for mechanical trip	Test button is standard on mid trip rocker handle version
	Z	Special specify	
Group 19: Inter-phase barrier and terminal cover (Interphase barriers and terminal covers are required for UL listed Approvals)	Code	Description	Comments
	A	Small inter-phase barrier	Interphase barriers and terminal covers may be required for multi-pole products that have UL listed approvals and UL recognized approvals. See the application guide for the D/DD frame for details, or contact your nearest CBI sales office for assistance.
	B	Large inter-phase barrier	
	C	Z Inter-phase barrier	
	1	Terminal cover(s)	
	2	Small inter-phase barrier and terminal cover	
	3	Large inter-phase barrier and terminal cover	
	4	Z inter-phase barrier and terminal cover	
X	Not applicable		
Z	Special specify		
Group 20: Approvals and typical safety marks (Standard marks and approval basket covers most regions)	Code	Description	Comments
	1	UL recognized, CSA, VDE, CE	For VDE, CE normally IEC/EN60934
	2	UL Listed, CSA, VDE, CE	For VDE, CE normally IEC/EN60947-2
	3	UL Listed (UL489A), VDE	
	4	UL recognized, CSA	
	A	UL recognized, only	
	Z	No approvals	
X	Special specify		
Group 21: Optional safety marks	Code	Description	Comments
	C	CCC Mark	Required for products exported to Peoples Republic of China
	X	Not applicable	Only required in specific cases where import into the country is prohibited, unless the product carries the mark.
	Z	Special specify	

For Options not listed please contact CBI for assistance

Example code: D-2SM4XBSOX5000AXX-XXXXXWHHBCZC

D-Frame Series Circuit Breakers



A member of the REUNERT Group

South Africa
CBI-electric: low voltage
Tripswitch Drive Elandsfontein
Gauteng South Africa
Tel: +27 11 928 2000
Fax: +27 11 392 2354
E-mail: cbi@cbi-electric.com
Website: www.cbi-electric.com

Germany
Circuit Breaker Industries GmbH
Postfach 101240 D-86882
Landsberg Germany
Tel: +49 8191 9472900
Fax: +49 8191 94729011
E-mail: office@cibreakers.de
Website: www.cibreakers.com

USA
Circuit Breaker Industries Inc
35E Uwchlan Ave Suite 328
Exton PA 19341 USA
Tel: +91 610 524 9949
Fax: +91 610 524 9945
E-mail: info@cibreakers.com
Website: www.cibreakers.com

Australia
Heinemann Electric (Pty) Ltd
821 Springvale Road Mulgrave Melbourne
Victoria 3170 Australia
Tel: +61 3 9560 3522
Fax: +61 3 9562 0420
E-mail: heinelec@heinelec.com.au
Website: www.heinemannelectric.com.au