

## B-Frame - Series Circuit Breakers



The B-Frame is a very compact yet robust circuit breaker. Used in various applications where space is constrained, the B-Frame is available in a variety of configurations, with different types of handles such as standard, rocker, protected rocker, push-pull, and push-to-reset handle types. The B-Frame is suitable for various applications in telecoms, lighting, railway signalling and solar applications. The B-Frame is also available as a 300 Vdc double pole switch.

### B-Frame Profile

The B-Frame is available in single pole and double pole configurations. This miniaturised precision breaker is available for both AC and DC applications, with a choice of time delay characteristics and auxiliary switch options. The B-Frame provides the solution when space constraints exist.

### Approvals

The B-Frame circuit breaker carries various approvals such as VDE, cURus, EAC, CCC and is CE certified. It is also recognised to UL 1077, UL 508 and listed to UL 489A.



### Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to two poles
- VDE, EAC and CCC approved, CE certified
- UL compliant (recognised / listed)
- Ratings 0.1 A to 30 A (Specific certifications)
- Precision tripping characteristics
- Wide range of circuits, mountings, terminations and time delays
- Optional auxiliary switch
- Optional illuminated rocker handle
- 300 Vdc switch (2 pole)

### Applications

- Lighting equipment
- Office equipment
- Power supplies
- Telecom power distribution
- Small generators and motors
- Railway signalling systems
- Entertainment systems
- Vending machines
- Power distribution units (PDU)
- Suitable for motor starting
- Solar and renewable power

**Hydraulic-Magnetic Circuit Breakers 100% rated, unaffected by ambient temperature**

## B-Frame - Series Circuit Breakers

### Technical Data

Product Type	B-Frame
Ambient Operating Temperature	-40°C to +85°C
Endurance	Minimum of 1000 operations with current (UL 489A Clause 12)* 6000 operations with current (UL 1077 Clause 22, UL 508 Clause 48)*
Dielectric Strength	1000 Vac plus twice the rated voltage for one minute (UL 489A Clause 8, UL 1077 Clause 23, UL 508 Clause 51)*
Rated Impulse Withstand Voltage	2.5 kV (IEC 60934 Clause 8.1.3.1.1)*
Weight	30 g single pole, 60 g double pole (unpacked)
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	50 G to IEC 60068-2-27
Vibration	10 G to MIL-STD-202F
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.
Accessories	Mounting accessories, legend plate

\* Refer to the standard for details

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker	Switch
Approvals	UL 1077, DIN / EN 60934, GB17701, CE, UKCA, EAC	UL 489A, DIN / EN 60934, GB17701	GB14048.2	UL 508
Number of Poles	1, 2	1	1, 2	2
Maximum Voltages	240 Vac, 65 Vdc	80 Vdc	48 Vdc	300 Vdc
Current Ratings	0.1 - 30 Aac, 0.1 - 25 Adc	0.1 - 30 Adc	0.5 - 15 A	15 Adc
Interrupting Capacity	1 kA @ 240 Vac 0.5 kA @ 65 Vdc	0.6 kA @ 80 Vdc 1.5 kA @ 65 Vdc (UL & GB only)	1 kA	-

Verify approvals for specific ratings in accordance with the relevant test certificate

### Ordering Information

	Code	Description	Code	Description
	Group 1: Frame, Colour and Handle Type	BA	Black body, square handle	BP
BB		Black body, paddle handle	BQ	Grey body, paddle handle
BC		Black body, baton handle	BR	Grey body, baton handle
BD		Black body, rocker handle	BS	Grey body, rocker handle
BE		Black body, illuminated rocker handle	BT	Grey body, illuminated rocker handle
BF		Black body, push-to-reset handle	BV	Grey body, push-to-reset handle
BG		Black body, push-pull handle	BW	Grey body, push-pull handle
BH		Black front plate, feed through pole	BZ	Black body, cut-off handle
Group 2: Mounting		Code	Description	Comments
	A	Centre lock (thread neck) metric (M12)	Thread neck. Rocker handle is not an option.	
	C	Centre lock (thread neck) imperial (1/2" – 32)	Thread neck. Rocker handle is not an option.	
	G	Snap-in vertical mounting without rocker guard	Rocker & illuminated rocker handle only	
	H	Snap-in vertical mounting with rocker guard	Rocker & illuminated rocker handle only	
	M	Snap-in horizontal mounting without rocker guard	Rocker & illuminated rocker handle only	
	N	Snap-in horizontal mounting with rocker guard	Rocker & illuminated rocker handle only	
	Q	Centre lock (thread neck) - imperial (3/8" – 32)	Thread neck. Only option for double pole push-to-reset and push-pull handles. Rocker handle is not an option.	
	R	Clip-in mounting - centre lock (thread neck) push-pull & push-to-reset only	Rocker handle is not an option	
Group 3: Number of Poles and Termination	Code	Description	Code	Description
	1	Single pole, quick connect	A	Single pole, bent quick connect terminal 90° outward
	2	Double pole, quick connect	B	Double pole, bent quick connect terminal 90° outward
	3	Single pole unit, screw terminal (M4 / 8-32) 45° bent	C	Single pole, screw terminal (M4 / 8-32)
	4	Double pole unit, screw terminal (M4 / 8-32) 45° bent	D	Double pole, screw terminal (M4 / 8-32)
	5	Single pole, clamp terminal M3.5		
	6	Double pole, clamp terminal M3.5		

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## Ordering Information

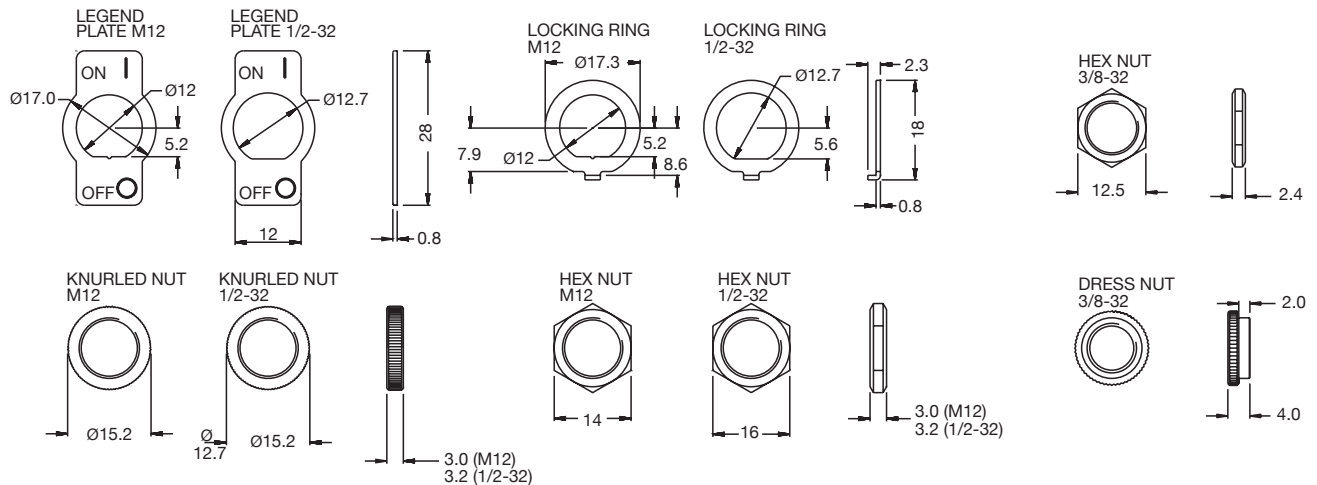
<b>Group 4: Rated Voltage - Main Circuit</b>	<b>Code</b>	<b>Description</b>			<b>Comments</b>			
	E	65 Vdc			Choose D in Group 5			
	F	80 Vdc - polarity sensitive			Choose D in Group 5			
	G	48 Vdc						
	M	65 Vdc / 240 Vac			Choose M in Group 5			
	P	240 V			Choose A in Group 5			
	T	300 Vdc - polarity sensitive			Choose D in Group 5			
<b>Group 5: Frequency</b>	<b>Code</b>	<b>Description</b>			<b>Comments</b>			
	A	AC 50 / 60Hz			Group 4 option P only			
	D	DC			Group 4 options E, F and T			
	M	AC / DC			Group 4 option M only			
<b>Group 6: Circuit Configuration (Circuit Breaker's Internal Construction)</b>	<b>Code</b>	<b>Description</b>			<b>Comments</b>			
	A	Switch			May contain an auxiliary switch as an option			
	B	Circuit breaker (series trip, current coil in series)			May contain an auxiliary switch as an option			
	D	Relay trip (voltage sensing) 4 terminal			Auxiliary switch not applicable			
<b>Group 7: Auxiliary Switch(es)</b>	<b>Code</b>	<b>Description</b>			<b>Comments</b>			
	0	No auxiliary switch			Only option with rear flush screw terminal			
	1	1 x change-over (3 A - 125 Vac, 24 Vdc)			Silver contacts			
	3	1 x change-over (0.1 A - 125 Vac, 30 Vdc)			Gold contacts			
<b>Group 8: Handle, Indicator Colour and Marking (Specify Current Rating on Front or Handle if Required)</b>	<b>Code</b>	<b>Description</b>			<b>Code</b>	<b>Description</b>		
	X	Not applicable			K	White (I-O & ON-OFF)		
	2	White (no marking)			L	Black (I-O & ON-OFF)		
	3	Black (no marking)			W	Orange (I-O & ON-OFF)		
	A	Green (I-O & ON-OFF)			Y	Red (I-O & ON-OFF)		
<b>Group 9: Voltages for Illuminated Rocker Units (Illuminated only)</b>	<b>Code</b>	<b>Description</b>			<b>Code</b>	<b>Description</b>		
	1	100 – 110 Vac lead connectors			A	100 – 110 Vac terminals connectors		
	2	200 – 240 Vac lead connectors			B	200 – 240 Vac terminal connectors		
	3	4 - 8 Vdc lead connectors (please specify)			C	4 - 8 Vdc terminal connectors (please specify)		
	4	16 – 24 Vdc lead connectors			D	16 – 24 Vdc terminal connectors		
	5	24 – 32 Vdc lead connectors (external resistor required)			E	24 – 32 Vdc terminal connectors (external resistor required)		
	7	8 – 16 Vdc lead connectors			G	8 – 16 Vdc terminal connectors		
<b>Group 10: Time Delay Characteristics, Pulse Tolerance at 10 ms</b>	<b>Code</b>	<b>Description</b>	<b>System</b>	<b>Pulse Tolerance (X In)</b>	<b>Code</b>	<b>Description</b>	<b>System</b>	<b>Pulse Tolerance (X In)</b>
	AD	Long time delay - AS & dual rated	AC and DC	6 - 8	BS	Medium delay	AC or DC	6 - 8
	BD	Medium time delay - BS & dual rated	AC and DC	6 - 8	CS	Short delay	AC and DC	6 - 8
	CD	Short time delay - CS & dual rated	AC and DC	6 - 8	AW	Long time delay - AD & inertia delay	AC and DC	11 - 12
	AI	Long time delay - AS & inertia delay	AC or DC	11 - 12	BW	Medium time delay - BD & inertia delay	AC and DC	11 - 12
	BI	Medium time delay - BS & inertia delay	AC or DC	11 - 12	CW	Short time delay - CD & inertia delay	AC and DC	12
	CI	Short time delay - CS & inertia delay	AC or DC	11 - 12	OX	Switch	AC and DC	-
	AS	Long delay	AC or DC	6 - 8	OP	Instantaneous trip	AC and DC	None
<b>Group 11: Rated Current (Main Circuit)</b>	<b>Code</b>	<b>Description</b>			<b>Comments</b>			
	XXXX	No rating			Examples only - Specific A ratings possible from 0.02 A - 30 A			
	050M	50 mA						
	0500	5 A						
	1000	10 A						
	1250	12.5 A						
	3000	30 A						
<b>Group 12: Voltage and Current Ratings for Shunt and Relay Trip Construction</b>	<b>Code</b>	<b>Description</b>			<b>Code</b>	<b>Description</b>		
	X	Not applicable			D024	24 Vdc voltage coil		
	A024	24 Vac / dc voltage coil			M100	100 mA current coil		
	A065	65 Vac voltage coil			M020	20 mA current coil		
	A100	100 Vac voltage coil			K005	5 A current coil		
	A110	110 - 125 Vac voltage coil			K015	15 A current coil		
	A220	220 - 240 Vac voltage coil			K025	25 A current coil		
	D012	12 Vdc voltage coil			<b>Recommended pulse duration: 20 ms to 40 ms</b>			
<b>Group 13: Approvals / Marks</b>	<b>Code</b>	<b>Description</b>			<b>Comments</b>			
	1	UL recognised, UL 1077, IEC/EN 60934, CE, UKCA						
	3	UL listed, UL 489A, IEC/EN 60934, CE, UKCA						
	4	IEC 60947-2, GB 14048.2, VDE, CE, UKCA						
<b>Group 14: Safety Marks</b>	<b>Code</b>	<b>Description</b>			<b>Comments</b>			
	1	GB17701 or GB14048.2			CCC were applicable			
	2	No safety marks						

For options not listed, please contact CBI

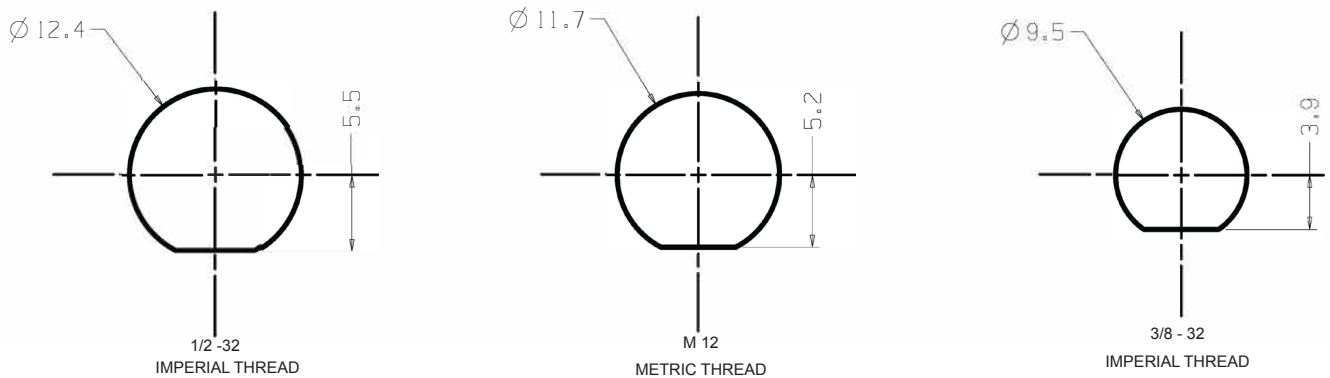
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### Mounting Accessories

Mounting hardware must be ordered separately. Legend plates available for M12 and 1.2" only.



### Panel cut-out dimensions for standard B Frame



#### Notes:

- 1 - General tolerance -0.0, +0.1 mm
- 2 - Fit hex nut onto threaded part of the product first
- 3 - Fit locking ring next if required
- 4 - Insert product through panel cut-out and adjust hex nut  
For the required protusion on front face of panel
- 5 - Fit legend plate if required
- 6 - Fit knurled/hex nut next and torque to 0.8nm max.  
Do not over tighte knurled nut

## B-Frame - Series Circuit Breakers

### Mounting Kit Ordering Information

Reference	A	B	C	D	E	F	G	H	I	J	K
<b>Mounting Kit Description</b>	2 x Hex nuts	2 x Hex nuts 1 x Vertical legend plate	2 x Hex nuts 1 x Horizontal legend plate	2 x Hex nuts 1 x Vertical legend plate 1 x Locking ring	2 x Hex nuts 1 x Horizontal legend plate 1 x Locking ring	1 x Hex nut 1 x Knurled nut 1 x Vertical legend plate	1 x Hex nut 1 x Knurled nut 1 x Horizontal legend plate	1 x Hex nut 1 x Knurled nut 1 x Vertical legend plate 1 x Locking ring	1 x Hex nut 1 x Knurled nut 1 x Horizontal legend plate 1 x Locking ring	1 x Hex nut 1 x Dress nut	1 x Hex nut 1 x Knurled nut

Reference	M12 Order Number	1/2" - 32 Order Number	3/8" - 32 Order Number
<b>A</b>	3670031	3670041	3670129
<b>B</b>	3670032	3670042	-
<b>C</b>	3670033	3670043	-
<b>D</b>	3670034	3670044	-
<b>E</b>	3670035	3670045	-
<b>F</b>	3670036	3670046	-
<b>G</b>	3670037	3670047	-
<b>H</b>	3670038	3670048	-
<b>I</b>	3670039	3670049	-
<b>J</b>	-	-	3670130
<b>K</b>	3670338	3670337	-

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