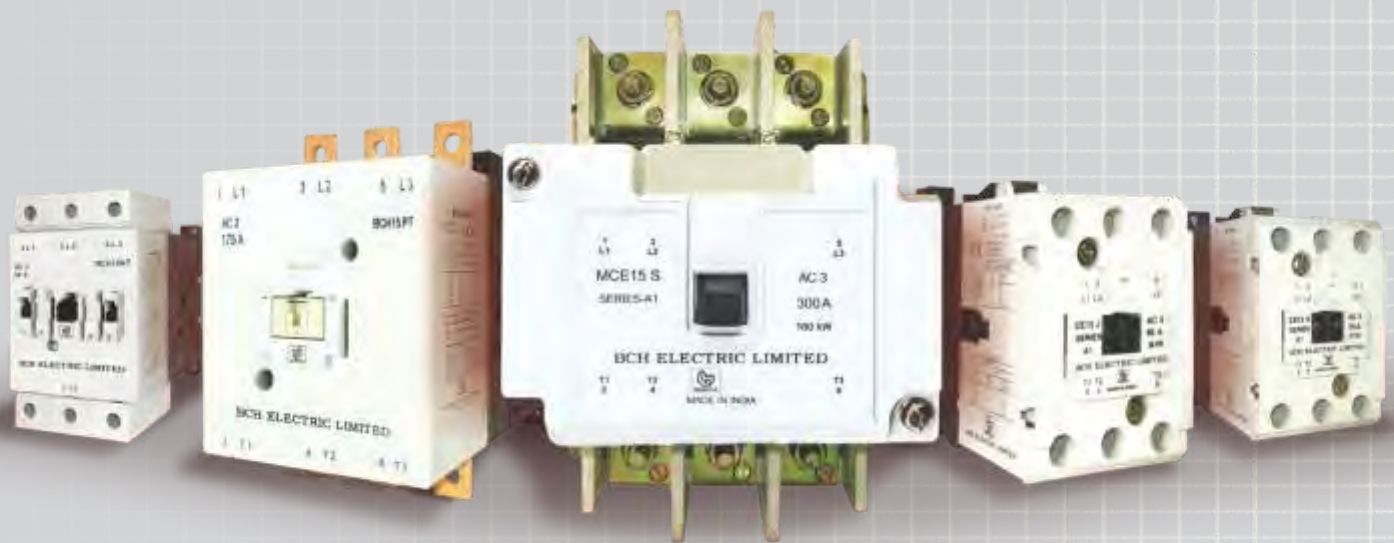


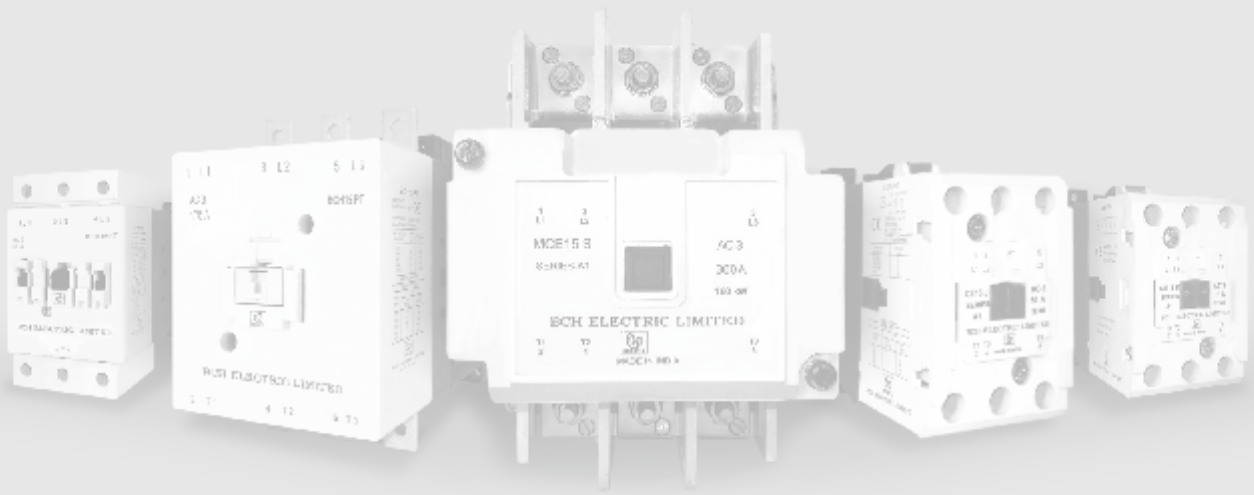
# DUROS freedom -Born Rugged

Contactors & Overload Relays

**DUROS**  
Freedom Series



BCH ELECTRIC LIMITED



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**DUROS**  
Freedom Series

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# BCH **DUROS** Freedom Contactors

**E**ver Wondered...

**H**aving a contactor which can perform efficiently in spite of the Harshesht & Toughest environmental conditions?

**H**aving a contactor which can last a life time?

**H**aving a contactor which can save more energy?

**H**aving a contactor which can fit into your smallest space available?

**BORN RUGGED**



**UNMATCHED PERFORMANCE IN TOUGH ENVIRONMENTS**

**DUROS**  
Freedom Series



- **Highly reliable operation**
- **No deration up to 60° C (AC3 duty)**
- **Time tested for heavy duty applications for 2 decades**

**LASTS A LIFE TIME**

- **Rugged construction**
- **Electrical life as high as 2.7 Million**
- **Mechanical life as high as 20 Million**
- **Insulation Voltage as high as 1 kV**
- **Impluse voltage as high as 8 kV**





## ENERGY EFFICIENCY - THE GREENEST CONTACTOR

**DUROS**  
Freedom Series



- Lower VA burdens (as low as 5 VA)
- Clean Pick-up
- Sophisticated Electronic control

## MOST COMPACT DESIGN

- Most compact construction
- Higher ratings in lower frame sizes
  - 110A contactor in 79mm frame
  - 175A contactor in 110mm frame



## CONTACTOR GENERAL CHARACTERISTICS Standard - IS/IEC 60947-4-1

Operating Temperature : -20°C to +60°C  
 Operating Altitude : 2000m  
 Humidity : 50% RH at 60°C  
           : 95% RH at 40°C  
 Vibration : 5 to 100 Hz (0.7g in x,y,z plane)  
 Operating position : ±30°



CONTACTOR CAT. REFERENCE		CE15AN 3=B	CE15BN 3=B	CE15CN 3=B	CE15DN 3=B	CE15EN 3=B	CE15FN 3=B	CE15GN 3=B	CE15HN 3=B	CE15JN 3=B	CE15KN 3=B
Nominal current rating at 380/415V 50Hz (AC3 Duty)	le (A)	6	9	12	18	25	32	40	50	65	75
Standard power rating at 380V / 415V 50Hz	P (kW)	2.2/2.2	4/4	5.5/5.5	9.0/9.0	11/11	15/15	18.5/22	22/25	30/37	37/37
Electrical endurance at rated current AC3 Duty	Million	2.7	2.3	2.1	1.5	1.5	1.7	1.1	1.3	1.4	1.3
Maximum frequency of no load operation	op/h	600	600	600	600	600	600	600	600	600	600

MECHANICAL DATA											
Frame size	mm	45						65			
Number of poles		4	4	4	3	3	3	3	3	3	3
Mounting Dimensions	mm	M4 34.5x60						M5 55x95			
Weight	Kg	0.41	0.41	0.41	0.44	0.44	0.44	1.28	1.28	1.28	1.28
Mechanical durability	Million	20	20	20	20	20	20	10	10	10	10

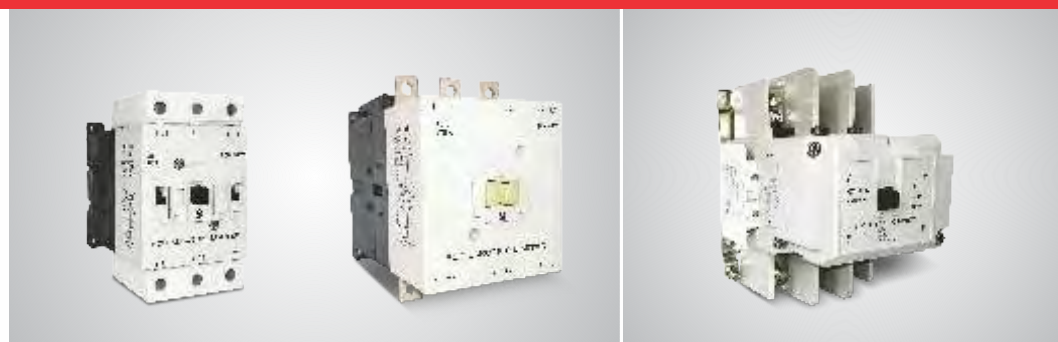
POWER CIRCUIT											
Operational voltage	Ue (V)	660	660	660	660	660	660	660	660	660	660
Insulation voltage	Ui (V)	690	690	690	690	690	690	690	690	690	690
Impulse Voltage withstand	kV	6	6	6	6	6	6	6	6	6	6
Thermal current	Ith (A)	20	20	20	32	40	40	60	75	80	80
Connections	mm <sup>2</sup>	2.5	2.5	2.5	6	6	6	25	25	25	25
AC-1 Duty rated at 380/415V 50Hz	le (A)	20	20	20	32	40	40	60	75	80	80
AC-4 Duty rated at 380/415V 50Hz	le (A)	6	9.1	12	16	23	23	37	44	50	59
Electrical life at rated current AC4 Duty	ops.	60000	59000	43000	67000	52000	75000	58000	62000	35000	34000
AC-4 Duty rating for 200000 operations	le (A)	2.5	4.3	4.8	8.3	10	12	17	34	34	34
Stator current rating acc. to AC2 Duty (A) ≤55°C	100% DF	6	9	12	16	25	32	40	50	65	73
Rotor Duty rating-Delta Connected (A) ≤40°C	100% DF	12	16	21	29	40	52	64	76	104	126
	60% DF	15	21	27	38	51	67	83	98	134	163
	40% DF	19	26	33	47	63	82	101	120	164	200
	20% DF	27	36	46	66	89	116	143	170	232	283
Maximum Rotor Voltage - Starting & Inching Starting & Plugging		Delta connected - 1160V ; Star connected - 1380V Delta connected - 580V ; Star connected - 690V									
Transformer primary switching 500V AC	A	3.1	4.2	5.4	7.6	10	13	15	20	20	24
Capacitor switching (single bank only) 380/400V, 3ph	kVAR	4.9	6.7	8.6	12	15	15	25	30	37	40

CONTROL CIRCUIT												
Coil VA Consumption	Pickup	VA	70				92			230		
	Seal	VA	6.4				8			28		

■ Suffix code for Coil Voltage • Code for built-in Aux. Contact (S-1N0, C-1NC)

## CONTACTOR GENERAL CHARACTERISTICS Standard - IS/IEC 60947-4-1

Operating Temperature : -20°C to +60°C  
 Operating Altitude : 2000m  
 Humidity : 50% RH at 60°C  
           : 95% RH at 40°C  
 Vibration : 5 to 100 Hz (0.7g in x,y,z plane)  
 Operating position : ±30°



CONTACTOR CAT. REFERENCE	BCH15KT -3-11-■	BCH15LT -3-11-■	BCH15MT -3-11-■	BCH15NT -3-11-■	BCH15PT -3-11-■	MCE15RN 3-7	MCE15SON 3-7	MCE15SN 3-7
Nominal current rating at 380/415V 50Hz (AC3 Duty) I <sub>e</sub> (A)	80	95	110	150	175	200	265	300
Standard power rating at 380V / 415V 50Hz P (kW)	37 / 40	45 / 47	55 / 59	75 / 80	90 / 95	110/110	90/90	160/160
Electrical endurance at rated current AC3 Duty Million	0.8	0.8	0.8	0.8	0.8	0.52	0.55	0.351
Maximum frequency of no load operation op/h	3000			1200		600	600	300

### MECHANICAL DATA

Frame size mm	79			110		178		
Number of poles	3	3	3	3	3	3	3	3
Mounting Dimensions mm	M5 70x100			M5 100x130		M6 160x166.5		
Weight Kg	1.8		2.2	4		8.3		
Mechanical durability Million	10					5		

### POWER CIRCUIT

Operational voltage U <sub>e</sub> (V)	1000					660		
Insulation voltage U <sub>i</sub> (V)	1000					690		
Impulse Voltage withstand kV	8	8	8	8	8	6	6	6
Thermal current I <sub>th</sub> (A)	125		135	230	250	300	315	315
Connections mm <sup>2</sup>	50			120		240		
AC-1 Duty rated at 380/415V 50Hz I <sub>e</sub> (A)	125		135	230	250	300	315	315
AC-4 Duty rated at 380/415V 50Hz I <sub>e</sub> (A)	80	90	110	150	175	140	165	170
Electrical life at rated current AC4 Duty ops.	20000					65000	60000	60000
AC-4 Duty rating for 200000 operations I <sub>e</sub> (A)	27	31	34	41	50	70	75	80
Stator current rating acc. to AC2 Duty (A) ≤55°C 100% DF	80	95	110	150	175	200	265	300
Rotor Duty rating-Delta Connected (A) ≤40°C 100% DF	160	175	224	280	350	393	425	465
	60% DF	185	200	250	325	406	507	600
	40% DF	217	236	245	380	475	621	735
	20% DF	272	296	360	475	594	879	950
Maximum Rotor Voltage - Starting & Inching Starting & Plugging	Delta connected - 1160V ; Star connected - 1380V Delta connected - 580V ; Star connected - 690V							
Transformer primary switching 500V AC A	36	40	50	65	80	90	100	135
Capacitor switching (single bank only) 380/400V, 3ph kVAR	40	50	60	80	100	110	140	158

### CONTROL CIRCUIT

Coil VA Consumption	Pickup VA	250			350		1040	
	Seal VA	19			5		116	

■ Suffix code for Coil Voltage

## CONTACTOR GENERAL CHARACTERISTICS Standard - IS/IEC 60947-4-1

Operating Temperature : -20°C to +60°C  
 Operating Altitude : 2000m  
 Humidity : 50% RH at 60°C  
           : 95% RH at 40°C  
 Vibration : 5 to 100 Hz (0.7g in x,y,z plane)  
 Operating position : ±30°



CONTACTOR CAT. REFERENCE		BCH54 •3•22•■	BCH55 •3•22•■	BCH57 •3•22•■	BCH62 •3•22•■	BCH64 •3•22•■	BCH76 •3•12•■	BCH78 •3•12•■
Nominal current rating at 380/415V 50Hz (AC3 Duty)	Ie (A)	400	450	550	700	860	1000	1200
Standard power rating at 380V / 415V 50Hz	P (kW)	220/240	220/240	280/315	375/400	475/500	550/600	650/700
Electrical endurance at rated current AC3 Duty	Million	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Maximum frequency of no load operation	op/h	300	300	300	300	300	120	120

MECHANICAL DATA								
Frame size	mm	220			280		334	
Number of poles		3	3	3	3	3	3	3
Mounting Dimensions	mm	M8 110x220			M10 175x280		M12 120x380	
Weight	Kg	13.0	13.0	13.5	26.4	27.6	49	53
Mechanical durability	Million	5	5	5-10	5-10	5-10	1-5	1-5

POWER CIRCUIT								
Operational voltage	Ue (V)	1000	1000	1000	1000	1000	690	690
Insulation voltage	Ui (V)	1000	1000	1000	1000	1000	690	690
Impulse Voltage withstand	kV	8	8	8	8	8	8	8
Thermal current	Ith (A)	600	600	760	1000	1100	1200	1350
Connections	mm <sup>2</sup>	2(40x5)	2(40x5)	2(50x5)	2(60x5)	2(60x6)	2(60x6)	2(60x6)
AC-1 Duty rated at 380/415V 50Hz	Ie (A)	600	600	760	1000	1100	1200	1350
AC-4 Duty rated at 380/415V 50Hz	Ie (A)	400	450	550	700	860	1000	1200
Electrical life at rated current AC4 Duty	ops.	6000	6000	6000	6000	6000	6000	6000
AC-4 Duty rating for 200000 operations	Ie (A)	100	115	140	185	215	265	300
Stator current rating acc. to AC2 Duty (A) ≤55°C	100% DF	400	450	550	700	860	1000	1200
Rotor Duty rating-Delta Connected (A) ≤40°C	100% DF	750	840	1060	1400	1540	1680	1850
	60% DF	860	960	1210	1600	1760	1930	2120
	40% DF	1020	1130	1430	1890	2080	2270	2500
	20% DF	1300	1420	1790	2370	2610	2840	3130
Maximum Rotor Voltage - Starting & Inching Starting & Plugging		Delta connected - 1700V ; Star connected - 2000V Delta connected - 850V ; Star connected - 1000V					Delta connected - 1160V ; Star connected - 1380V Delta connected - 580V ; Star connected - 690V	
Transformer primary switching 500V AC	A	185	203	250	315	390	450	540
Capacitor switching (single bank only) 380/400V, 3ph	KVAR	190	200	250	350	400	450	500

CONTROL CIRCUIT									
Coil VA Consumption	Pickup	VA	950			1600		2450	
	Seal	VA	11			25		75	

■ Suffix code for Coil Voltage



## CONTROL CONTACTOR & OVERLOAD RELAYS

### CONTROL CONTACTOR

Control Relay		D15CR22 <sup>■</sup> , D15CR31 <sup>■</sup> , D15CR40 <sup>■</sup>		
Standards		IEC 60947-1, 60947-5		
Width (mm)		45		
Number of Poles		4		
Protection against Direct Contact		IP20		
Mechanical Life Span		20 Million		
Weight		410 gm		
Environment Pollution Degree IEC 60947-4-1		3		
Impulse Withstand Voltage IEC 60947-1		6kV		
Operating Temp. (open)		-20 to + 65°C		
Operating Altitude		2000m		
Operating Position (Related to normal mounting position)		±30°		
Contact Rating (rated thermal current, open I <sub>th</sub> )		10A		
Rated Insulation Voltage U <sub>i</sub>		690V		
Operating Frequency Limits		50 to 60Hz		
<b>AC 15 Duty</b>	<b>U<sub>e</sub></b>	<b>VA</b>	<b>I<sub>e</sub></b>	
Control of AC	48	480	10	
Electromagnetic Loads (Greater than 72VA)	120	720	6	
	240	960	4	
	440	880	2	
	660	990	1.5	
<b>DC 13 Duty</b>	<b>U<sub>e</sub></b>	<b>W</b>	<b>I<sub>e</sub></b>	
Control of DC	24	192	8	
Electromagnets	48	288	6	
	120	120	1	
	220	110	0.5	
	440	110	0.25	
	660	66	0.1	
Coil Data	refer CE15BN • 3 <sup>■</sup>			



### THERMAL OVERLOAD RELAYS

THERMAL OVERLOAD RELAYS		MC318ANA* / MC318GNA*	CT*MC305ANA3C	MC305ANA3*
Storage temperature	deg C.	-40 -- +70	-40 -- +60	-40 -- +60
Operating temperature	deg C.	-25 -- +55	-10 -- +55	-10 -- +55
Fixing		Direct/ Independent mounting	Independent mounting	Direct mounting
<b>POWER CIRCUIT</b>				
Rated Insulation Voltage U <sub>i</sub> (V)		690	690	690
Tripping Class as per IEC 947-4-1		10A	20	10
Switching Frequency Op./ Hr		15	15	15
<b>AUXILIARY CIRCUIT</b>				
Type of contacts		1NO+1NC	1C/0	1C/0
Reset type		Auto/ manual selectable	Auto/ manual selectable	Auto/ manual selectable
Rated voltage U <sub>i</sub> at NO/ NC contacts (V)		500	600	600
Rated operational current	240V (A)	3(NC)/ 1.5(NO)	2.5	2.5
	AC15 440V (A)	1.9(NC)/ 0.95(NO)	1.4	1.4
	500V (A)	1(NC)/ 0.75(NO)	1.2	1.2
I <sub>e</sub>	DC13 220V (A)	0.12(NC)/ 0.04(NO)	0.12	0.12
Gg class protection fuse (A)		10(NC)/ 6(NO)	4	4

\* Please refer page no.5 for corresponding suffix.



## OVERLOAD RELAYS

### Citation Relay (Range: 0.195A to 600A)

- Built-in Single Phasing Protection
- Ambient Temperature Compensation
- Test button for checking tripping mechanism
- Field convertible auto/manual reset
- Snap on cover
- Contactor mounting & separate mounting for flexibility
- Trip class 10

### DUROS Freedom Relay (Range: 0.1A to 80A)


- Built-in Single Phasing Protection
- Ambient Temperature Compensation
- Test button for checking tripping mechanism
- Field convertible auto/manual reset
- Contactor mounting & separate mounting for flexibility
- Trip class 10A
- Potential free Contacts

RELAY TYPE	Relay Range (A)	* Suffix for Corresponding range
 <p><b>CITATION DIRECT :</b> MC305ANA3*</p>	0.195 to 0.31	A
	0.30 to 0.48	B
	0.47 to 0.75	C
	0.72 to 1.14	D
	1.07 to 1.70	E
	1.58 to 2.50	F
	2.40 to 3.80	G
	3.80 to 6.00	H
	6.00 to 9.30	J
	8.90 to 13.50	K
	13.20 to 20.00	L
	17.40 to 24.00	M
	22.00 to 30.00	N
 <p><b>CITATION - CT OPERATED :</b> CT*MC305ANA3C</p>	24.40 to 39.00	1
	37.60 to 60.00	2
	56.40 to 90.00	3
	84.60 to 135.00	4
	131.60 to 210.00	5
	188.00 to 300.00	6
	263.20 to 420.00	7
	376.00 to 600.00	8

CITATION ACCESSORIES	CAT REFERENCE	RELAY TYPE
DIN Rail Kit	MC305DM1	For A - K Relay
	MC305DM2	For L - N Relay
Adjustment Cover	MC305PC	
Terminal Block*	MC305TB1	For Relay up to K Range
Terminal Block*	MC305TB2	For L, M & N Ranges
Terminal Block	MC305TB3	For Terminal Side (L, M & N Ranges)

\* Terminal Block are meant for converting contactor Mounting Relays to individual Mounting Relays. With N Relays use of Terminal Block MC305TB3 is essential.

## DUROS FREEDOM RELAY

RELAY TYPE	Relay Range (A)	* Suffix for Corresponding range
<p><b>DUROS FREEDOM RELAY - DIRECT :</b> MC318ANA3*</p> <p>Use Adaptor for individual mounting C318F1</p> 	0.10 to 0.16	A
	0.16 to 0.25	B
	0.25 to 0.40	C
	0.40 to 0.63	D
	0.63 to 1.00	E
	1.00 to 1.40	F
	1.30 to 1.80	G
	1.70 to 2.40	H
	2.20 to 3.10	J

## DUROS FREEDOM RELAY

RELAY TYPE	Relay Range (A)	* Suffix for Corresponding range
	2.80 to 4.00	K
	3.50 to 5.00	L
	4.50 to 6.50	M
	6.00 to 8.50	N
	7.50 to 11.00	P
	10.00 to 14.00	Q
	13.00 to 19.00	R
	18.00 to 25.00	S
	24.00 to 32.00	T

New

**DUROS FREEDOM RELAY - DIRECT : MC318GNA3\***  
Use Adaptor for individual mounting C318F2



Relay Range (A)	* Suffix for Corresponding ran
22.00 - 32.00	B
29.00 - 42.00	C
36.00 - 52.00	D
45.00 - 63.00	E
60.00 - 80.00	F

## NOTES ON ORDERING INFORMATION

▪ COIL VOLTAGE CODE FOR CONTACTORS	Coil Voltage AC	Suffix for AC	Suffix for DC*
	24	U	U3
	42	R	-
	48	W	W3
	110	A	A3
	220	B	B3
	240	K	-
	380	L	-
	415	M	-
	440	C	-
	550	D	-

▪ COIL VOLTAGE CODE- SIZE D15CR, CE15AN, BCH15KT, BCH15LT, MCE15RN to SN

\* DC coils are supplied upto size K/ 73A contactors

▪ COIL VOLTAGE CODE FOR CONTACTORS	Coil Voltage AC	Suffix for AC	Suffix for DC*
	24	24	-
	110	110	-
	220/240	220	-
	380	380	-
	440	440	-
	550	550	-

BCH15MT, BCH15NT, BCH15PT

▪ COIL VOLTAGE CODE FOR CONTACTORS	Coil Voltage AC	Suffix for AC	Suffix for DC
	110	110	110
	220	220	220
	380	380	380
	440	440	440

BCH55 to BCH64

▪ COIL VOLTAGE CODE FOR CONTACTORS	Coil Voltage AC	Suffix for AC	Suffix for DC
	48	-	W17
	110	A7	A17
	220	B7	B17
	380	L7	-
	440	-	-

BCH76, BCH78

▪ Suffix code for Coil Voltage

## ADD-ON ACCESSORIES

### Additional Auxiliary Contact Blocks

Rated Thermal Current I <sub>th</sub>	10A
Rated Insulation Voltage	690V
Operating Frequency	50 - 60 Hz
AC15 Duty at 220/240V	960VA, 4A
DC 13 Duty at 220V	110W, 0.5A
Conditional Short Circuit Current	1kA



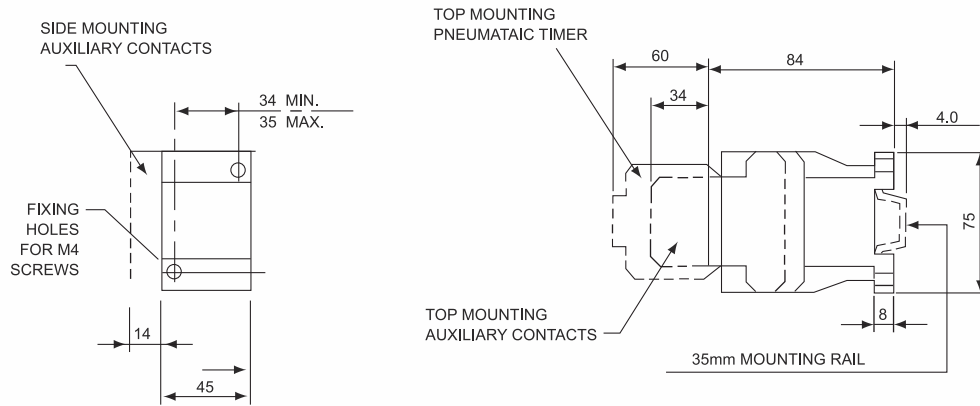
ACCESSORIES	CONFIGURATION	CAT NO.	CONTACTOR TYPE	
<p>Aux. Contact Block (side Mounting)</p>	1NO	C320KGSR10	CE15 & CR	
	1NO+1NC	C320KGSR11		
	1NC	C320KGSR01		
	2NO	C320KGSR20		
	<p>4th Neutral Switching Pole</p>	1NO+1NC	BCH15S11	BCH15
		1NO+1NC	MC320KB11	MCE15R to MCE15S
		2NO+2NC	EF22	BCH54 to BCH64
		1NO+1NC	EB11	BCH76 to BCH78
325A		NP325/5	BCH54 to 57	
500A	NP500/5	BCH62 to 64		
500A	NP500/6			
900A	NP900/6	BCH76 to 78		
500A	NP500/7			
900A	NP900/7			
<p>Aux. Contact Block (Front Mounting)</p>	1NO	C320KGTC10	CE15, CR	
	1NC	C320KGTC01		
	2NO	C320KGT*20		
	2NC	C320KGT*02		
	1NO+1NC	C320KGT*11		
	2NO+2NC	C320KGT*22		
	3NO+1NC	C320KGT*31		
	4NO	C320KGT*40		
	1NO+3NC	C320KGT*13	BCH15	
	4NC	C320KGT*04		
	4NO	BCH15T40		
	3NO+1NC	BCH15T31		
	2NO+2NC	BCH15T22		
	1NO+1NC	BCH15T11		
	1NO	BCH15T10		
	1NC	BCH15T01		
<p>Pneumatic Timer Block "On/Off" Delay site selectable</p>	1NO+1NC (0.1 to 30 sec)	C320TP1	CE15, CR, BCH15	
	1NO+1NC (0.1 to 180 sec)	C320TP2		
<p>Mechanical Interlocks</p>	-	C321KM60	CE15, CR	
	-	MC321KM3	MCE15R to MCE15S	
	H-Horizontal V-Vertical	BM5H / BM5V	BCH54 to 57	
		BM6H / BM6V	BCH62 to 64	
		BM7H / BM7V	BCH76 to 78	
		BM0H	BCH15	
		BM3H		
<p>Coil Surge Suppressors</p>	24-48V (50/60Hz)	MC320LR11	CE15, CR	
	110-240V (50/60Hz)	MC320LR12		

\*Suffix code for Coil Voltage

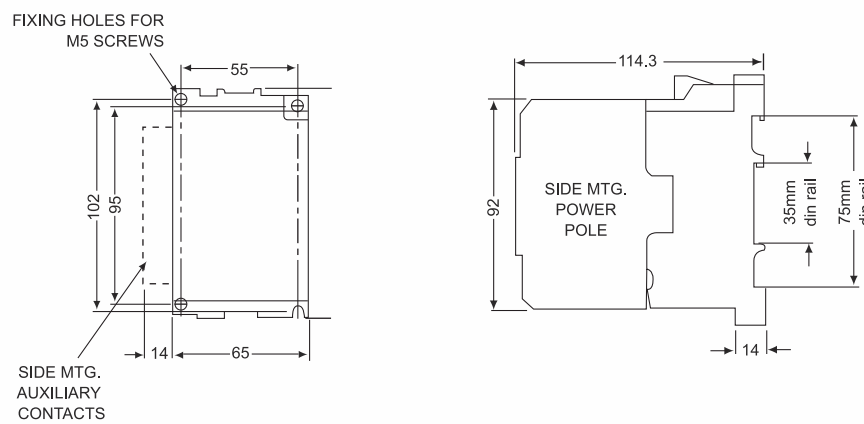


## CONTACTOR DIMENSION (mm)

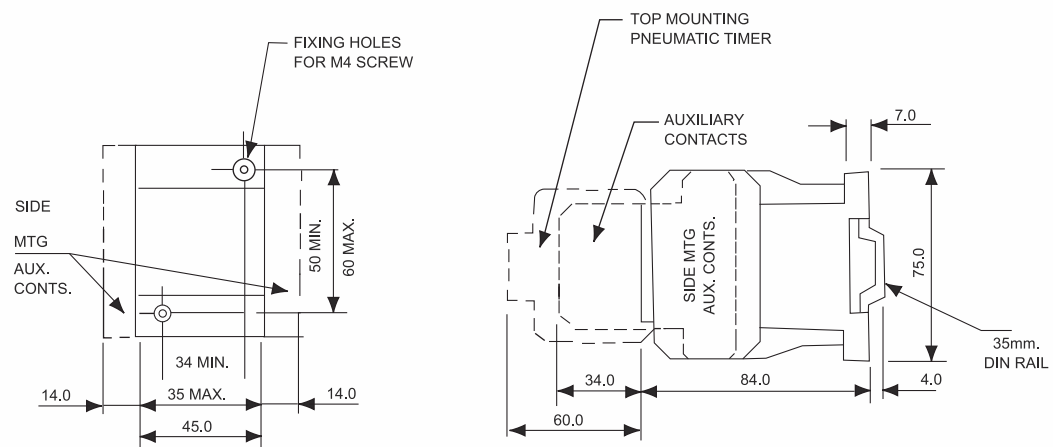
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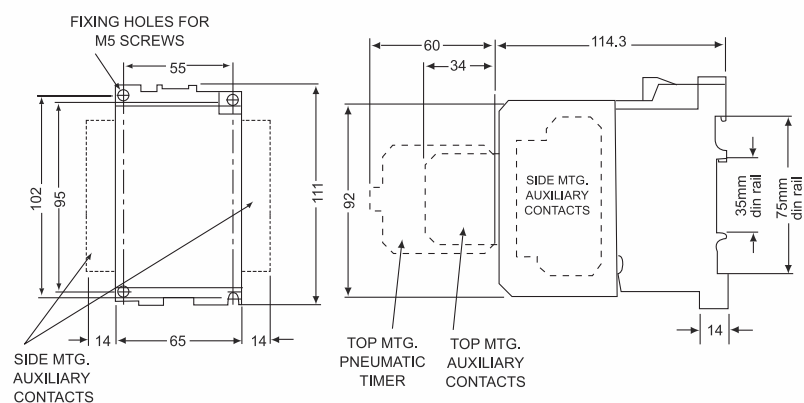
### CE15GN TO KN



### CE15BN TO FN

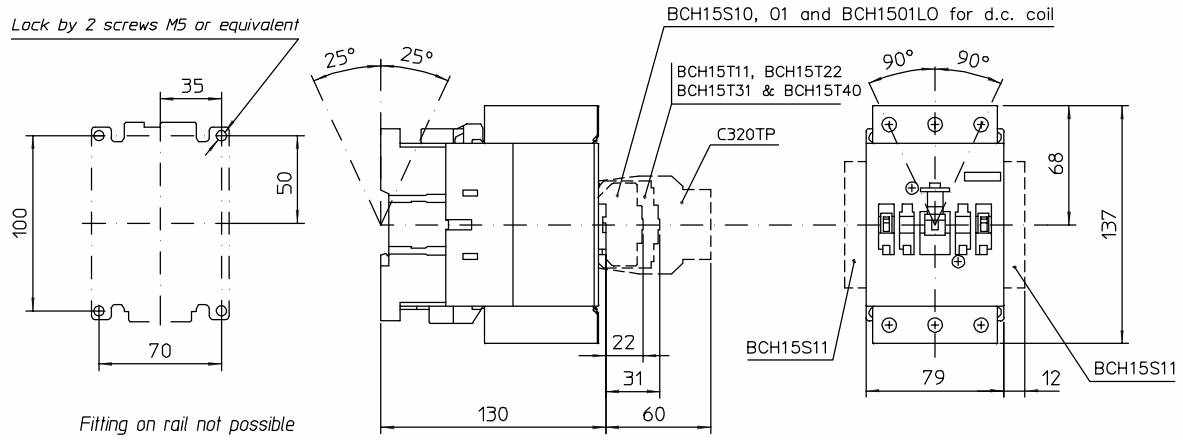


### CE15GN TO KN

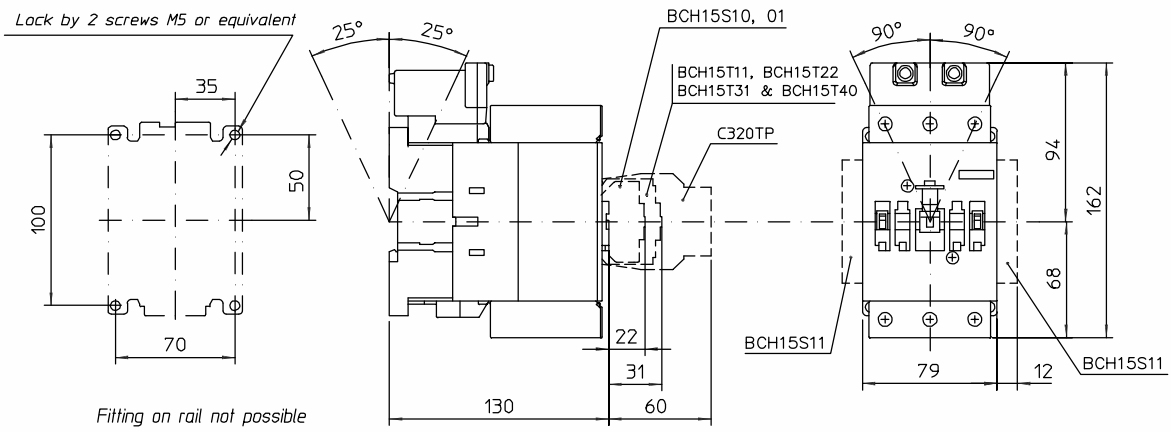


## CONTACTOR DIMENSION (mm)

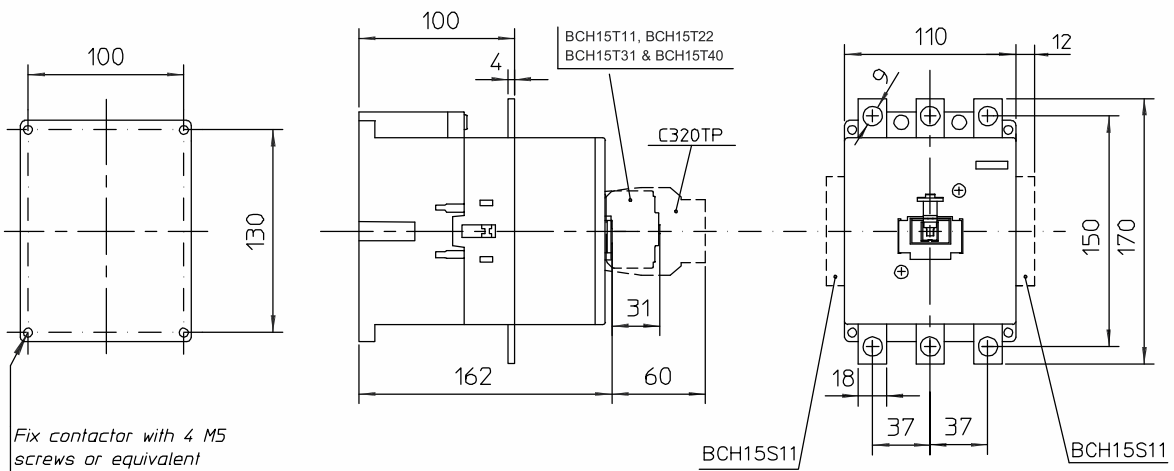
### BCH15KT/LT



### BCH15MT

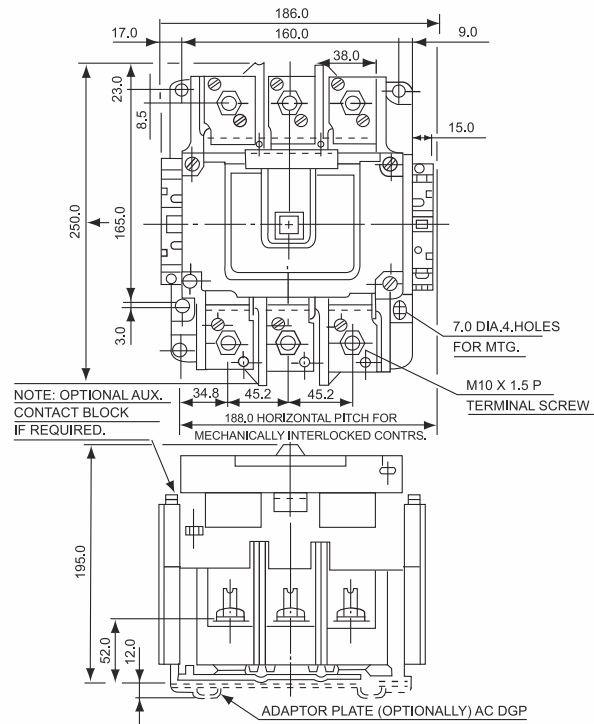


### BCH15NT/PT

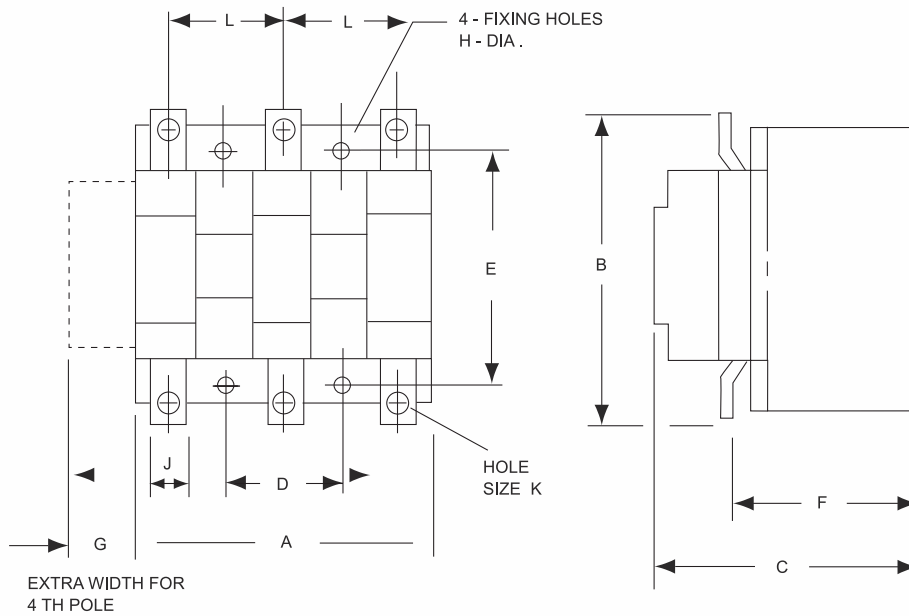


## CONTACTOR DIMENSION (mm)

### MCE15RN TO SN



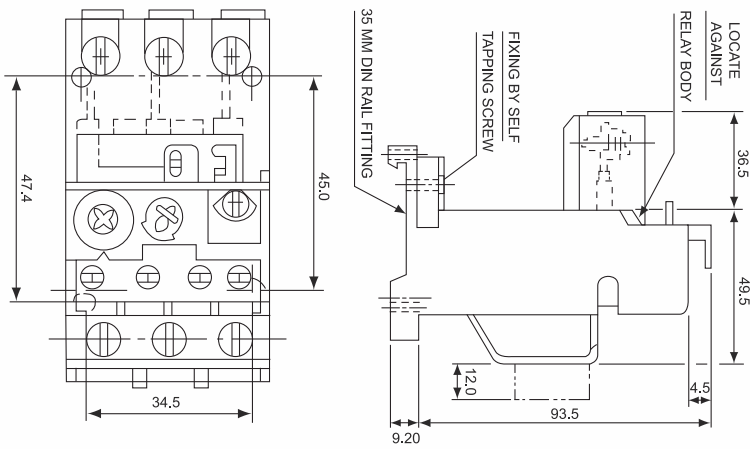
### BCH54 TO BCH78



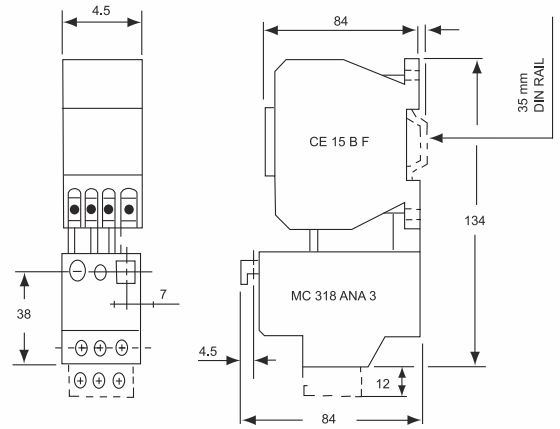
	A	B	C	D	E	F	G	H	J	K	L	Mechanical Interlock mounting matrix		Weight kg.
												Horiz.	Vert.	
BCH 54	220	233	225	110	220	160	72	8	30	10.5	80	262	314	13
BCH 55	220	233	225	110	220	160	72	8	30	10.5	80	262	314	13
BCH 57	220	258	225	110	220	160	72	8	40	12.5	80	262	314	13.5
BCH 62	280	307	291	175	280	200	90	10	50	13	100	312	380	26
BCH 64	280	361	291	175	280	200	90	10	50	15	100	312	380	28
BCH 76	334	490	345	120	380	220	111	12	50	17X2	100	380	580	49
BCH 78	334	490	345	120	380	220	111	12	60	17X2	100	380	580	53

## OVERLOAD RELAY - DIMENSIONS (mm)

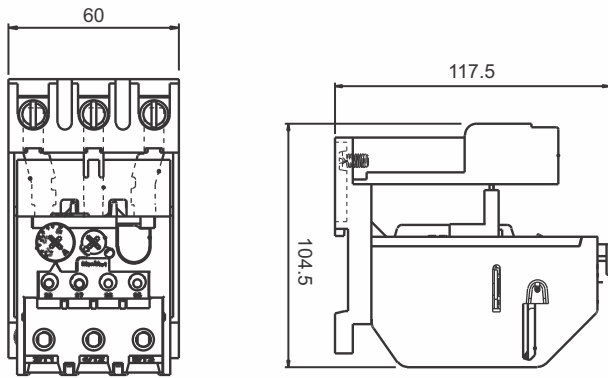
MC318ANA\* + C318 F1



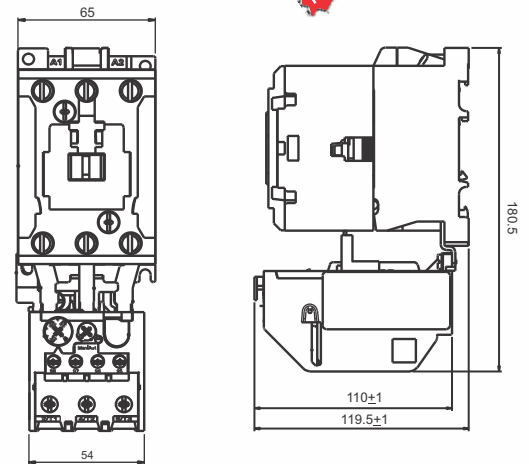
CE15BN TO FN + MC318ANA 3\*



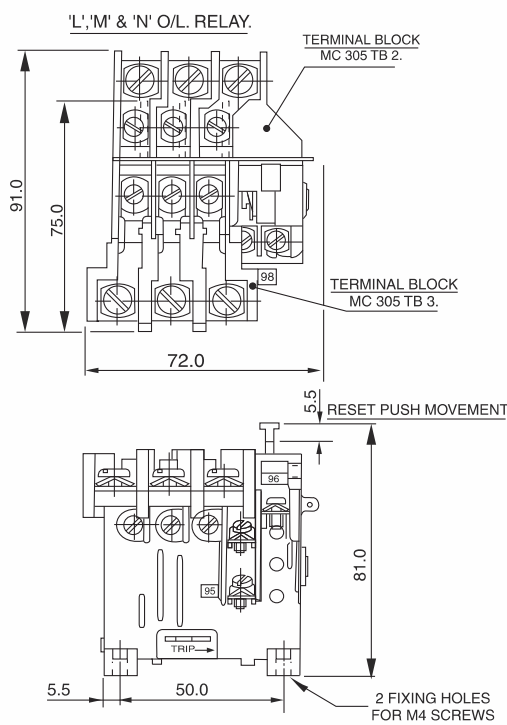
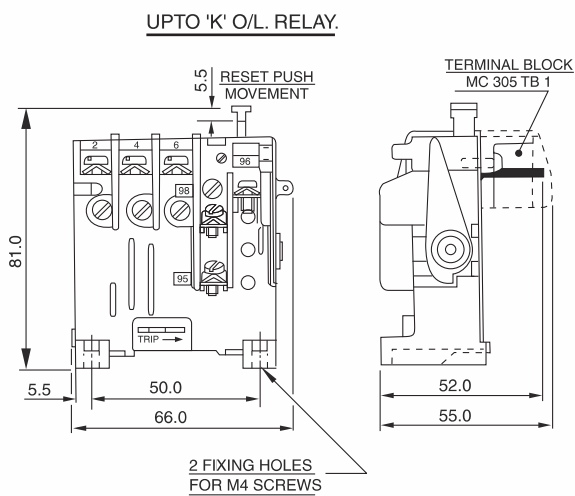
**New** MC318GNA3\* + C318F2



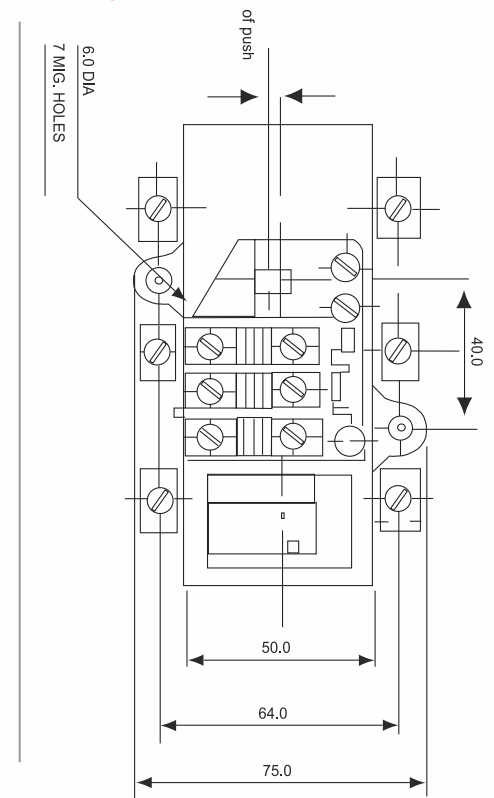
CE15GN TO KN + MC318GNA3\* **New**



## CITATION - DIRECT READING RELAY



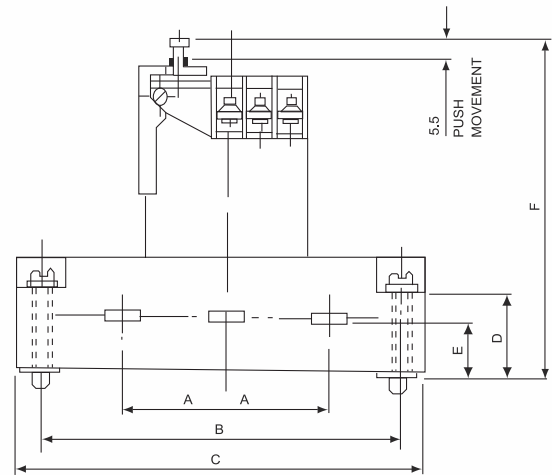
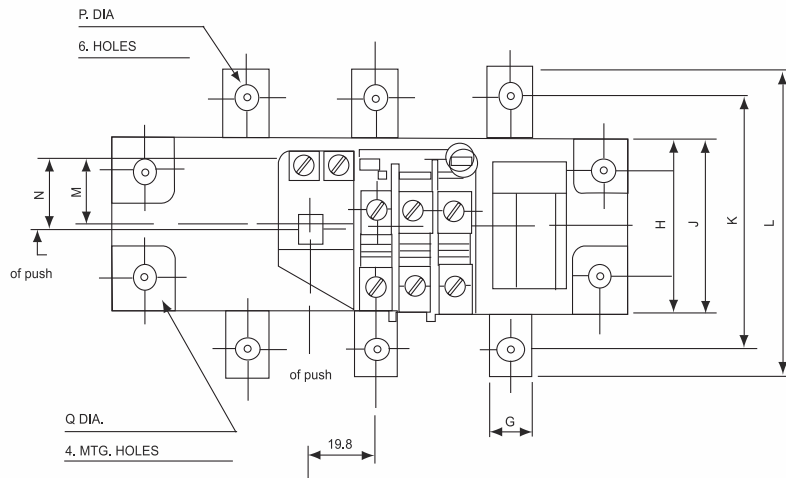
## CT1 RELAY





## OVERLOAD RELAY - DIMENSIONS (mm)

### CT2 - CT8



### CT OPERATED RELAY

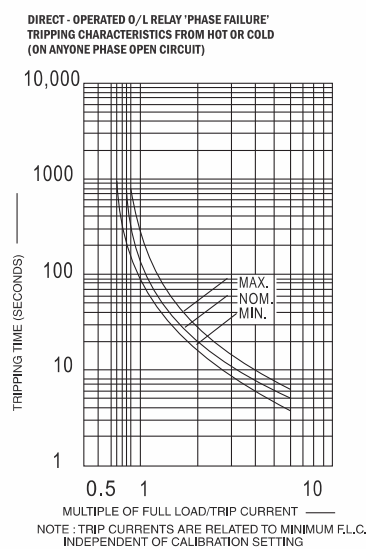
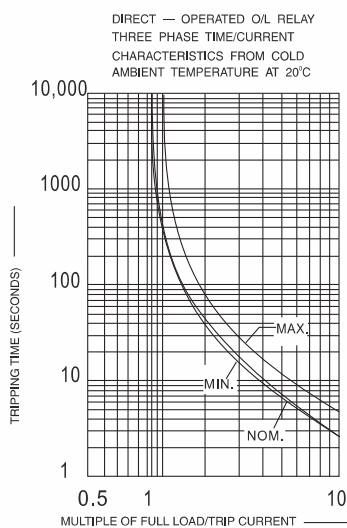
Relay/type	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
CT1	40	40	125	-	-	123	-	-	50	64	76	-	-	-	7.0
CT2	44	138	156	35	21.5	125	12	32	50	74	90	18.0	21.0	6.5	7.0
CT3	54	162	180	43	25.5	133	22	32	50	82	106	18.0	21.0	13.0	7.0
CT4	54	162	180	43	25.5	133	22	32	50	82	106	18.0	21.0	13.0	7.0
CT5	60	182	200	63	34.5	153	32	32	50	88	116	18.0	21.0	13.0	7.0
CT6	60	182	200	63	34.5	153	32	32	50	88	116	18.0	21.0	13.0	7.0
CT7	86	252	270	63	33.0	153	34	32	50	100	140	18.0	21.0	16.5	7.0
CT8	86	252	270	63	33.0	153	34	32	50	100	140	18.0	21.0	16.5	7.0

### WEIGHT (kg)

Citation M overload relay	: 0.123
Terminal block	: 0.029
CT operated relay	: CT1: 1.3
	CT2: 1.4
	CT3: 1.6
	CT5: 2.2
	CT6: 2.2
	CT7: 3.1
	CT8: 3.3

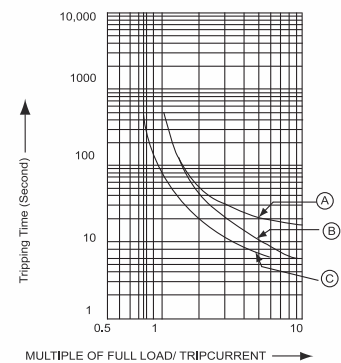
## OVERLOAD CHARACTERISTIC (Time/Current)

### CITATION DIRECT OPERATED OVERLOAD RELAY



### SIZE CT\* 305ANA 3C

#### FLC CURRENT RANGES 24.44 TO 600A



- A. Three phase characteristic at higher setting
- B. Three phase characteristic at lower setting.
- C. Single phase characteristic (Based on lower setting)

## INDUSTRIES & APPLICATIONS

BCH Contactors have proven and time tested installed base in various industries, spanning over more than four decades, of which BCH Contactors have championed in following industries against all our competition.

### Cement Plants

Cement Industries generally have very dusty environment with high ambient temperatures. This poses challenges to the switchgears. To meet these challenges we need rugged & reliable switchgear solutions



- Coal Handling
- Ash Handling
- Kiln application
- Crane application
- Packaging plant

### Steel

Steel manufacturing is an extremely challenging industry which always demands rugged solutions with a focus on reducing the energy consumption



- Coke oven
- Hot Rolling Mill
- Blast Furnace
- Cranes
- Pulverizers

### Cranes

The challenges of Material Handling Equipment (MHE) Industries lies in providing efficient solutions related to the movement, storage, control and protection of the material. Starting, Plugging & Inching operations demands rugged switchgears



- EOT Crane
- Rotary overhead cranes
- Gantry Cranes

### Railways

Railways demands switching solution for the tough environmental conditions i.e. varied Temperatures, Humidity, Dusty conditions, High Vibration applications & High frequency Resistive braking.



- Air Conditioning
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