

Our Products



Switchgear & Controlgear



Boxes & Enclosures



Wires & Cables



Power Factor Control Product



Motors



Motor Control Centres (MCCs) & Power Control Centres (PCCs)



Automation Product



Custom Built Products

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BCH ELECTRIC LIMITED

we care for you

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Total Protection, Complete Control



MCCBs

- Comprehensive range from 10A to 4000A in 3 & 4 Pole with range of accessories
- Breaking capacities : from 10kA to 180kA
- Ics = 100%, 75% and 50% of Icu
- Thermal magnetic & Microprocessor based releases
- Short circuit adjustment from 100A frame onwards

TemBreak

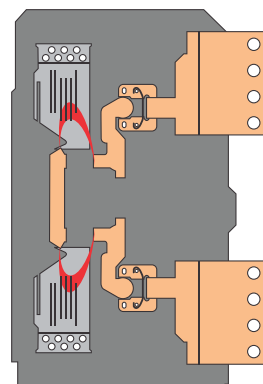
Insulation
Voltage **800V**



ACBs

- Range from 800A to 6300A in 3 & 4 Pole version with comprehensive range of accessories
- Panel friendly compact size with uniform depth & height
- Microprocessor based releases
- Choice of standard inverse, very inverse & extremely inverse characteristics (IEC60255-3)
- Wide variety of protection functions and zone selective interlocking

Unique Double
Break Contact
System



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we care for you

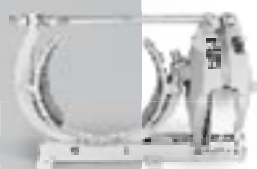
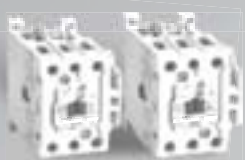
Corporate Office : 1105, New Delhi House, 27, Barakhamba Road, New Delhi-110 001 Tel. : 91-11-23316029/3610/6539/43673100 Fax : 91-11-23715247
E-mail : marketing@bchindia.com • www.bchindia.com

Registered Office : Block 1E, 216, Acharya Jagadish Chandra Bose Road, Kolkata - 700 017

Works 1 : 20/4, Mathura Road, Faridabad - 121 006 (Haryana) Tel. : 0129-4063000/4293000 Fax : 0129-2304024

Works 2 : 64-68, Sector-7, IIE, Pant Nagar, Rudrapur, Udham Singh Nagar - 263 153 (Uttarakhand) Tel. : 05944-250214/16 Fax : 05944-250215

Low Voltage Switch Gear & Control Gear Products



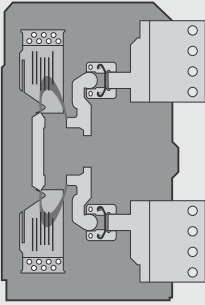
- **Air Circuit Breakers**
- **MCCBs - Tembreak, Tembreak Plus, Eco Plus**
- **FSU, SDFU**
- **AC Contactors**
- **DC Contactors**
- **Solid State Relays**
- **Overload Relays**
- **Electronic Overcurrent Relays (BOCR)**
- **Motor Protection Circuit Breakers (MPCB)**
- **Limit Switches**
- **Push Buttons, Indicating Lights, LEDs**
- **Foot Switches**
- **AC Solenoids & Brakes**
- **DC Brakes**
- **Plugs & Sockets**
- **Plug & Socket Boxes**
- **Rewireable Fuse Switches**
- **Pneumatic Timers**
- **Motor Starters**
 - **DOL**
 - **Star Delta**
 - **Mini Manual**
- **Submersible Pump Starters**
 - **Phase (DOL and Star Delta)**
 - **Single Phase**
- **Oil Immersed Starters**

Air Circuit Breakers.....BCH

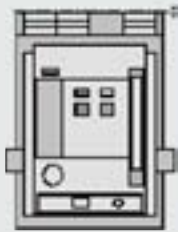


Very fast interruption by "DoubleBreak" system

The unique "Double Break" main contact system ensures extremely fast interruption of short circuit currents and substantially reduces main contact wear. The internally symmetrical "DoubleBreak" structure allows reverse power connection. The only ACB with this facility in India



No extra arc space required, vertical stacking permitted



No extra arc space

The TemPower2 ACB dissipates all arc energy within its unique "DoubleBreak" arc chamber. The internal energy dissipation within the ACB allows the clearance distance of the ACB to nearby earthed metal to be zero. This will assist in minimizing switchboard height and costs.

Releases

TemPower2 provides positive protection for electric power systems.

The TemPower2 series is equipped with an RMS sensing over-current release (OCR) having a wide range of protection functions and capabilities.



Standard OCR with adjustment dial Type AGR-11.

Enhanced OCR with adjustment dial Type AGR-21.

Enhanced OCR with L.C.D. display Type AGR-22.

For General Feeder circuits
■ L Characteristics

For General Feeder circuits
■ R Characteristics

For Generator protection

Protection features

- | | |
|----------------------|--------------------------|
| Standard | ■ N-phase protection |
| ■ Long time delay | ■ Earth leakage |
| ■ Short time delay | ■ Two channel pre trip |
| ■ Instantaneous | ■ Advance LCD display |
| Optional | ■ Contact temperature |
| ■ Ground fault | ■ monitoring |
| ■ Reverse Power trip | ■ Communication protocol |

For prices contact our nearest sales office.

TemPower 2 Air Circuit Breakers

Double Breaker : Two Steps ahead

3 Pole ACBs

Type	Rated Current (A)	Poles	Breaking Capacity Ics=Icu at 440VAC	OCR	MRP Rs.	
					MDO	EDO
AR208S	800	3	65 KA	AGR-11 BL-AL	160545	188379
AR212S	1250	3	65 KA	AGR-11 BL-AL	176120	212170
AR216S	1600	3	65 KA	AGR-11 BL-AL	201983	238033
AR220S	2000	3	65 KA	AGR-11 BL-AL	247118	283168
AR325S	2500	3	85 KA	AGR-11 BL-AL	311276	347326
AR332S	3200	3	85 KA	AGR-11 BL-AL	364785	400835
AR440S	4000	3	100 KA	AGR-11 BL-AL	441762	479094

4 Pole ACBs

Type	Rated Current (A)	Poles	Breaking Capacity Ics=Icu at 440VAC	OCR	MRP Rs.	
					MDO	EDO
AR208S	800	4	65 KA	AGR-11 BL-AL	191868	227918
AR212S	1250	4	65 KA	AGR-11 BL-AL	225282	261332
AR216S	1600	4	65 KA	AGR-11 BL-AL	249538	285588
AR220S	2000	4	65 KA	AGR-11 BL-AL	304221	340271
AR325S	2500	4	85 KA	AGR-11 BL-AL	395541	431591
AR332S	3200	4	85 KA	AGR-11 BL-AL	460760	496810
AR440S	4000	4	100 KA	AGR-11 BL-AL	528870	572424

Prices for 5000A and 6300A on request

MDO : Manual Draw out, EDO : Electrical Draw out

Note : Above price is with over current release (OCR) Type AGR-11BL-AL with standard Functions LSI

Long Time (L), Short Time (S) and Instantaneous (I)

In Motorised Version the following are included in the above price

Electrical Charging Device

Closing Release

Main Safety Shutter, Shunt Release and Auxiliary Switches (4C) are available as STANDARD in all the above versions

Options

Other Over Current Releases	Functions	Additional Price (Rs.)
AGR-11BL-GL	LSIG*	1615
AGR-21BL-PS	LSI with LCD display	9125
AGR-21BL-PG	LSIG with LCD & Communication	on req.

* When using a 3 Pole ACB in a 3 phase 4 wire system, additional Neutral CT is required for OCR type AGR-11BL-GL

Accessories

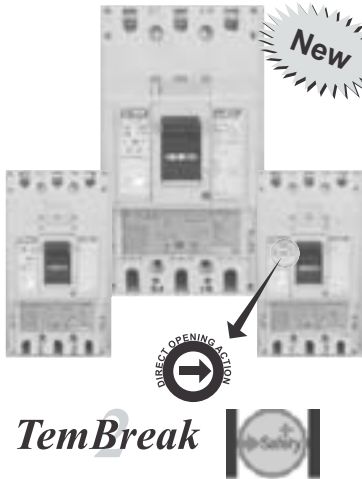
	MRP Rs.
Shunt Release	2680
UVT - Instantaneous type	11790
UVT - Delay type	11790
Closing Release	2680
Auxiliary Switch	778
Neutral CT 800A & 1200AF	4460
Neutral CT 1600A & 2000 AF	4180
Neutral CT 2500A & 3200 AF	8033
Neutral CT 4000AF	11261
Mechanical Interlock Horizontal	on req.
Mechanical Interlock-Vertical	on req.
Key Lock (In ON)	on req.
Key Lock (In OFF)	on req.



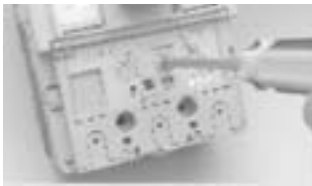
Moulded Case Circuit Breakers

TEMBREAK-2 - MCCBs

Total Protection Complete Control



User friendly adjustment



Clear Trip Indication



Click & Fit Accessories



Ratings A	Frame	Breaking Capacity (at 415VAC)		Cat No. 3P	MRP Rs. 3P	Cat No. 4P	MRP Rs. 4P
		Icu KA	Ics KA				
THERMAL MAGNETIC RELEASES (Thermal adjustable from 63% to 100% In, Magnetic Adjustable from 6 to 12 In)							
20,32,50,63,100	E125NJ	25	19	XT2E125NJ3F#U0	4980	XT2E125NJ4F#U0	6660
125	E125NJ	25	19	XT2E125NJ3FABU0	7420	XT2E125NJ4FABU0	8645
20,32,50,63,100	S125NJ	36	30	XT2S125NJ3F#U0	7200	XT2S125NJ4F#U0	8610
125	S125NJ	36	30	XT2S125NJ3FABU0	7520	XT2S125NJ4FABU0	9750
20,32,50,63,100	S125GJ	65	33	XT2S125GJ3F#U0	9415	XT2S125GJ4F#U0	11375
125	S125GJ	65	33	XT2S125GJ3FABU0	10775	XT2S125GJ4FABU0	13540
20,32,50,63,100	H125NJ	125	85	XT2H125NJ3F#U0	on request	XT2H125NJ4F#U0	on request
125	H125NJ	200	150	XT2H125NJ3FABU0	on request	XT2H125NJ4FABU0	on request
160	S160NJ	36	36	XT2S160NJ3FAFU0	9800	XT2S160NJ4FAFU0	11920
160	S160GJ	65	36	XT2S160GJ3FAFU0	13270	XT2S160GJ4FAFU0	28320
160	H160NJ	125	85	XT2H160NJ3FAFU0	on request	XT2H160NJ4FAFU0	on request
160	L160NJ	200	150	XT2L160NJ3FAFU0	on request	XT2L160NJ4FAFU0	on request
250	E250NJ	25	19	XT2E250NJ3FBEU0	14060	XT2E250NJ4FBEU0	18360
250	S250NJ	36	36	XT2S250NJ3FBEU0	19375	XT2S250NJ4FBEU0	21880
250	S250GJ	65	36	XT2S250GJ3FBEU0	20025	XT2S250GJ4FBEU0	23485
250	S250PE	70	70	XT2S250PE3FBEU0	on request	XT2S250PE4FBEU0	on request
250	H250NJ	125	85	XT2H250NJ3FBEU0	on request	XT2H250NJ4FBEU0	on request
250	L250NJ	200	150	XT2L250NJ3FBEU0	on request	XT2L250NJ4FBEU0	on request
400	E400NJ	25	25	XT2E400NJ3FD0U0	21560	XT2E400NJ4FD0U0	26000
400	S400CJ	36	36	XT2S400CJ3FD0U0	22945	XT2S400CJ4FD0U0	27925
400	S400NJ	50	50	XT2S400NJ3FD0U0	24350	XT2S400NJ4FD0U0	29765
400	H400NJ	125	85	XT2H400NJ3FD0U0	on request	XT2H400NJ4FD0U0	on request
400	L400NJ	200	150	XT2L400NJ3FD0U0	on request	XT2L400NJ4FD0U0	on request
MICRO PROCESSOR BASED RELEASES							
(LTD, STD AND INSTT as standard with Overload setting from 40% to 100% of In. Preset characteristics							
400	S400NE	50	50	XT2S400NE3FD0U0	27625	XT2S400NE4FD0U0	32480
630	E630NE	36	36	XT2E630NE3F630U0	31280	XT2E630NE4F630U0	42250
630	S630CE	50	50	XT2S630CE3F630U0	31390	XT2S630CE4F630U0	45500
630	S630GE	70	50	XT2S630GE3F630U0	35750	XT2S630GE4F630U0	52540

ACCESSORIES FOR TEMBREAK-2

TYPE	Description	125A	250A	400A & 630 A	MRP Rs.
Aux Switch	1 Change over		T2AX00M3SWA		750
Alarm Switch	1 Change over		T2AL00M3SWA		750
Shunt Release	100-120VAC		T2SH00A10WA		1894
Shunt Release	200-240VAC		T2SH00A20WA		1894
Shunt Release	380-450VAC		T2SH00A40WA		1894
UV Release	200-240VAC		T2UV00A20NWA		2435
UV Release	380-450VAC		T2UV00A40NWA		2435
Motor Operator	110VAC	T2MC12A10NA	T2MC25A10NA		on req.
Motor Operator	220VAC	T2MC12A20NA	T2MC25A20NA		on req.
Motor Operator	240VAC	T2MC12A24NA	T2MC25A24NA		on req.
Motor Operator	100-240VAC			T2MC40A10NA	on req.

Please add current rating code at page no. 5

ROTARY HANDLE - PANEL MOUNTED (IP 54)

Cat No.	MRP Rs.
T2HP12R5BNA	4315
T2HP25R5BNA	4315
T2HP40R5BNA	5080

EcoPlus

Switch to the cost effective circuit breaker solution



Eco Plus MCCBs

Affordable yet Powerful

- Ratings from 16A to 250A
- Rated at 50° C to suit Indian conditions
- 3 Pole
- Fixed Thermal and Fixed Magnetic
- CE Marked (EP-100 & EP-125)

Terasaki Moulded Case Circuit Breakers 'Eco Plus' - 3-Pole

Frame	Breaking Capacity KA at 415 V AC (I _{cu})	Rating (A)	Thermal Setting	Magnetic Setting	Cat No.	MRP Rs.
EP-100	10	16, 20, 25, 32, 40, 50, 63, 80, 100	Fixed	Fixed	XEP-100-*	2052
EP-125	25	16, 20, 25, 32, 40, 50, 63, 80, 100	Fixed	Fixed	XEP-125-*	4730
EP-125	25	125	Fixed	Fixed	XEP-125-AB	6650
EP-250	18	160	Fixed Fixed	Fixed Fixed	XEP-250-AF	6005
		200			XEP-250-B0	7490
		225			XEP-250-BB	7735
		250			XEP-250-BE	11260

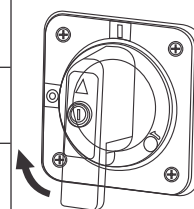
* Add current rating code

Code - Current Rating

Rating	15A	20A	25A	32A	40A	50A	63A	80A	100A
Code	16	20	25	32	40	50	63	80	A0

Accessories

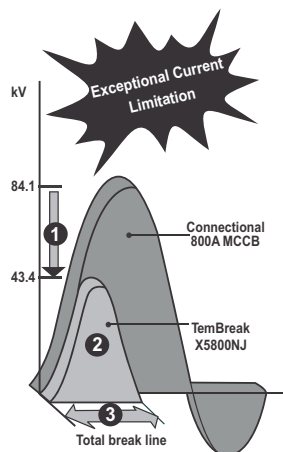
Frame / Accessories		EP-100	EP-125	EP-250
Shunt 200-480 VAC	Cat No.	2HSHEP100-240/415V	2HSHEP125-240/415V	2HSHEP250-240/415V
	Unit Price Rs.	952	1995	1995
UVT 415 VAC	Cat No.	2HUVEP100-415VAC	2HUVEP125-415VAC	-
	Unit Price Rs.	3195	3200	-
Auxiliary Switch 1 C/Over	Cat No.	2H-AUX-EP100	2H-AUX-EP125	2H-AUX-EP250
	Unit Price Rs.	611	611	860
Alarm switch 1 C/Over	Cat No.	2H-AL-EP100	2H-AL-EP125	2H-AL-EP250
	Unit Price Rs.	611	611	970
Rotary Handle* IP-54, Black	Cat No.	XFH-T1HP10R	XFH-T1HP12R	XFH-T1HP25R
	Unit Rs.	1445	1445	1445



MCCB BCH



- Conforms to IEC 60947-2
- Range from 10A to 4000A
- 3 Pole and 4 Pole
- Thermal Magnetic and Microprocessor based releases
- Current Limiting design
- Thermal setting : 63% to 100 % of In
- Magnetic setting : 5 to 10 times In (400A & above)
- Line load interchangeable



Terasaki Moulded Case Circuit Breakers 'TemBreak'

Economy Series 'XE', 3 Pole

MRPFrame	Breaking Capacity KA at 415 V AC (Icu)	Rating (A) In	Thermal Setting	Magnetic Setting	Cat. No.	MRP Rs.
XE 100 NS	10	10, 15, 20, 30, 40 50, 60, 75, 100	Fixed	Fixed	X1B3F•K00	2491
XE 225 NC	15	125, 150, 175 200 225	Fixed	Fixed	X2C3F•K00 X2C3FB0K00 X2C3FBBK00	6245 7470 7790

Price of 400 and 600A fixed thermal setting MCCBs with Breaking Capacity of 25KA at 415 AC available on request.

Standard Series 'XS' & High Fault Series 'XH'

- Adjustable Thermal releases (63% TO 100% In)
- Magnetic Setting : Adjustable from 5 to 10 Times in (400A and above)

Frame	Breaking Capacity KA at 415 V AC (Icu)	Rating (A) In-Adj. 63%to100%	Cat. No.	MRP Rs.	
				3Pole	4Pole
XS 125 NJ	25	20,32,50,63,100 125	XUF*F•U00 XUF*FABU00	5305 7635	7035 9040
XS 250 NJ	25	160 250	X20*FAFU00 X20*FBEU00	9740 14285	11690 18400
XS 250 PJ	35	160 250	X2P*FAFU00 X2P*FBEU00	10500 18510	12450 22080
XS 400 CJ	35	400	X4I*FD0U00	22730	28140
XS 630 CJ	35	630	X6N*V	26300	32470
XH 125 NJ	50	20,32,50,63,100 125	XUG*F•U00 XUG*FABU00	9740 11040	11905 13635
XH 250 NJ	50	160 250	X2Q*FAFU00 X2Q*FBEU00	13260 20670	16775 23920
XS 400 NJ	50	400	X4J*FD0U00	24140	30520
XS 630 NJ	50	630	X60*V	27382	36430
XS 800 NJ	50	800	X8J*V	37880	53030

* Add 3 for Three Pole and 4 for Four Pole

• Add the current rating code.

Code-Current Rating

Rating	15A	20A	30A	32A	40A	50A	60A	63A	75A	100A	125A	150A	160A	175A	200A	225A	250A	400A
Code	15	20	30	32	40	50	60	63	75	A0	AB	AE	AF	AG	B0	BB	BE	D0

Accessories

Frames/Accessories	XE 100 NS	XS 125 NJ XH 125 NJ XH 125 PJ	XE 225 NC XS 250 PJ XS 250 NJ XH 250 NJ XH 160 PJ	XH 250 PE XE 400 NS XS 400 CJ XS 400 NJ XS 400 NE XH 400 NE XH 250 PJ XH 400 PJ	XE 600 NS, XS 630 CJ XS 630 NJ, XS 630 NE XS 800 NJ, XS 800 NE XH 630 NE, XH 800 NE XH 630 PJ, XH 800 PJ
	MRP Rs.				
Shunt	952	1995	1995	2410	2710
UVT	3530	2235	2591	2805	3000
Auxilliary Switch	610	610	860	1120	1614
Alarm Switch	610	610	970	1495	1614
Motor Operator	17285	17255	17285	27520	31115
Rotary Handle*	1302	1302	1302	2491	4980

* Rotary Handle configuration is panel mounted and with variable depth ■ Normal stock items subject to availability

- Shunt and UVT cannot be fitted together in MCCB - UVT is not available for XE 225 NC



MCCB Accessories Catalogue Numbers

TYPE OF MCCB	100A Frame		125A Frame	250A Frame	400A Frame	630/800 A Frame	225 A Frame
RATED VOLTAGE OF COIL	XE100NS 15A TO 100A	XE100NS 10A	XH125PJ XS125NJ, XH125NJ XH125PJ	XH160PJ XS250NJ XS250PJ XH250NJ	XH250PJ XS400CJ XS400NJ XS250PE XH250PJ XH400PJ	XS630NJ XS630CJ XS800NJ XH630PJ XH800PJ XS630NE XS800NE	XE225NC
SHUNT TRIP AC (100V - 115 V) #	2H1929BAAK	2H1927BABK	2H1935BACK	2H1937BAAK	2H1305BAAK	2H1515BAAK	2H0153CABK
SHUNT TRIP AC (200V - 480 V) #	2H1929BBAK	2H1927BBBK	2H1935BBCK	2H1937BBAK	2H1306BAAK	2H1516BAAK	2H0153CBBK
SHUNT TRIP DC 24V	2H1929BCAK	2H1927BCBK	2H1935BCCK	2H1937BCBK	2H1308BAAK	2H1518BAAK	-
UVT AC 380/450V #	2H1941BAAK	2H1939BABK	2H1947BACK	2H1949BABK	2H1492BAAK	2H1503BAAK	N.A.
AUXILIARY SWITCH 1 CHANGE OVER #	UXXB0001CK	UXXB0001CK	UXXB0019DK (3P) 2H2383DAAK (4P)	2H1951BAAK	UXXB0004EK	UXXB0007DK	2H0156CABK
ALARM SWITCH 1 CHANGE OVER #	UXLB0006CK	UXLB0006CK	UXLB0001EK (3P) 2H2385DAAK (4P)	2H1953BABK	UXLB0009DK	UXLB0010DK	2H0157CABK
AUX - ALARM SWITCH # 1 CHANGE OVER	UXLB0008DK	UXLB0008DK	UXLB0003EK (3P) 2H2387DAAK (4P)	2H1954BABK	UXLB0013EK	UXLB0015DK	2H0157CBBK
ROTARY HANDLE PANEL MOUNTED #	XFHC1V		XFHC22V	XFHC23HV XFHC23V (XS250NJ)	XFHC34V	XFHC46V	TFH023CBV

For UVT and Shunt Trip for other voltages, please contact branch office
Normal stock items subject to availability

Voltage-Motor Operator

AC	100-220V	
DC	24V	110V

Prices of the following Accessories available on request :

- Rear Connected Studs
- Mechanical Interlock
- Extension Handle
- Auxilliary Alarm Switch
- Handle Lock
- Plug-in base
- Terminal shrouds

Moulded Case Circuit Breakers Extended Terminals

MCCB Type	No. of Poles	Cat Ref.	MRP Rs.
XE 100 NS	3	ACMTP 100	350
XS125NJ, XH125NJ	3	ACMTP 1253	372
	4	ACMTP 1254	460
XS250NJ, XS250PJ XH250NJ, XE225NC	3	ACMTP2503	631
	4	ACMTP2504	810
XS400CJ XS400NJ	3	ACMTP4003	1350
	4	ACMTP4004	1552

One set = 6 Nos. Links for 3 Pole MCCBs

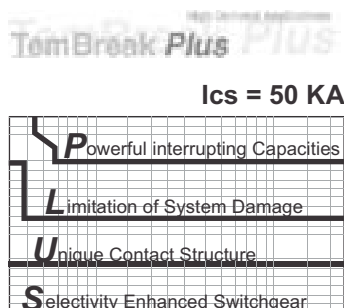
One set = 8 Nos. Links for 4 Pole MCCBs

Tembreak Plus Range of MCCBs

Breaking Capacity 'Ics' @ 415 VAC = 50KA

Thermal Magnetic MCCBs (Adjustable Thermal from 63% to 100%)

Magnetic setting : Adjustable from 5 to 10 times In (XH250PJ and above)



Frame	Breaking Capacity Icu at 415 VAC	Rating	Cat. No.	MRP Rs.	
				3 Pole	4 Pole
XH125PJ	50KA	20,32,50,63,100 125A	XUU*F.U00 XUU*FABU00	9365 10680	11270 12620
XH160PJ	50KA	160A	XUV*V	13700	17595
XH250PJ	65KA	250A	X2U*V	19460	23835
XH400PJ	65KA	400A	X4U*V	23045	28605
XH630PJ	85KA	630A	X6U*V	31065	42145
XH800PJ	85KA	800A	X8U*V	39795	50895

■ Refer current rating code in the table

* 3 for 3 Pole and 4 for 4 Pole

Microprocessor based releases available on request



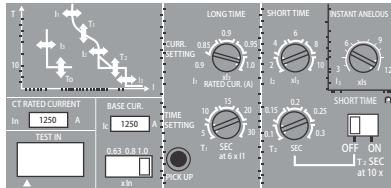
Micro Processor MCCBs

Utilisation Category B
Standard Protections :

LTD Long time delay
STD Short time delay
INST Instantaneous

Adjustable Overload with time delay
Adjustable Short circuit with time delay
Adjustable Short circuit (Instantaneous)

Micro processor based release



Frame	Breaking Capacity Icu at 415 VAC	Rating (A) In	Cat. No.	MRP Rs.	
				3 Pole	4 Pole
XH250PE	65KA	250	X21*V	24485	31367
XS400NE	50KA	400	X4E*V	27385	32360
XS630NE	50KA	630	X6E*V	37280	47295
XS800NE	50KA	800	X8C*V	41070	51825
XS1250NE	65KA	1250	XXC*VK	77170	93345
XS1600NE	85KA	1600	XYA*V	90855	114615

* 3 for 3 Pole and 4 for 4 Pole

Mining Series MCCBs

(1100V AC Insulation Voltage), 3 Pole,
Front Connected Releases : Micro Processor Based (LTD, STD and INST)

Marine MCCBs

Approved from

- ABS, USA
- LR, UK
- GL, Germany

Breaking Capacity (kA) at 1100 V AC	Rating (A) In	Cat. No.	MRP Rs.
12.5	400A	XV400NE	45035
12.5	630A	XV630PE	73635
12.5	800A	XV800NE	75250
20	1250A	XV1250NE	102790

Plug in MCCBs

Plug in Type MCCBs



Frame	Rating (A) In	Breaking Capacity Icu at 415 VAC	MRP Rs.	
			3 Pole	4 Pole
XS50NB	10,20,30,40,50	10KA	6415	-
XE100NS	10,15,20,30,40,50,60,75,100	10KA	6670	-
XS125NJ	20,32,50,63,100,125	25KA	12675	16415
XS250NJ	160,250	25KA	19885	29360
XS250PJ	160,250	35KA	26025	36435
XS400CJ	400	35KA	32425	42445
XS400NJ	400	50KA	36695	54980
XS630CJ	630	35KA	59985	72735
XS630NJ	630	50KA	64740	75670
XS800NJ	800	50KA	75400	94315
XH125NJ	20,32,50,63,100,125	50KA	18015	19085
XH250NJ	160,250	50KA	28700	35375
XS125CJ	20, 32, 50, 63, 100, 125	14KA	10810	13330

Note: Price Include the MCCB Price and the plug in base price





Switch Disconnecter Fuse Units

Suitable for DIN / BOLTED fuses in open execution

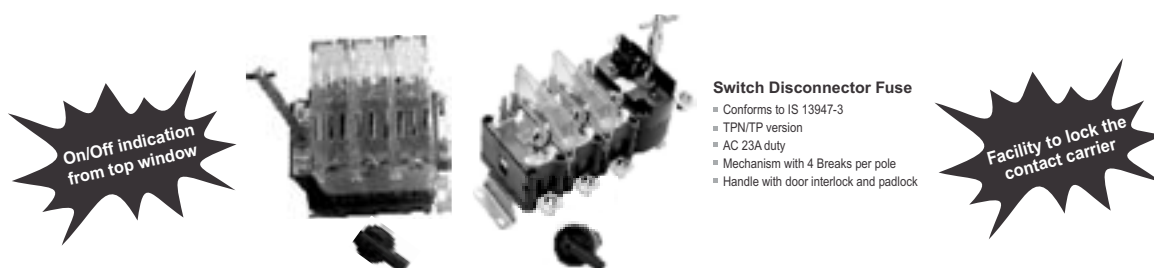
Rating (A) AC-23A	Cat No.	Fuse Type	Type	MRP Rs.
32A	PSFS323ND00	DIN	TPN	1590
32A	PSFS323ND000	DIN	TPN	1590
32A	PSFS323NB	Bolted	TPN	1590
32A	PSFS323B	Bolted	TP	1552
63A	PSFS633ND00	DIN	TPN	2204
63A	PSFS633ND000	DIN	TPN	2204
63A	PSFS633NB	Bolted	TPN	2204
63A	PSFS633B	Bolted	TP	2140
100	PSFS1003*	DIN/Bolted	TP	4380
100	PSFS1003N*	DIN/Bolted	TPN	4581
125	PSFS1253*	DIN/Bolted	TP	5782
125	PSFS1253N*	DIN/Bolted	TPN	6210
160	PSFS160*	DIN/Bolted	TP	6363
160	PSFS1603N*	DIN/Bolted	TPN	6902
200	PSFS2003B	DIN/Bolted	TP	7940
200	PSFS2003NB	DIN/Bolted	TPN	8144

Switch Disconnecter

Rating (A) AC-23A	Cat No.	Fuse Type	Type	MRP Rs.
32A	PSSD323N	-	TPN	1540
63A	PSSD633N	-	TPN	2120
100A	PSSD1003N	-	TPN	4220
125A	PSSD1253N	-	TPN	5240
160A	PSSD1603N	-	TPN	5904
200A	PSSD2003N	-	TPN	6670

Fuse Switch Units Type FS

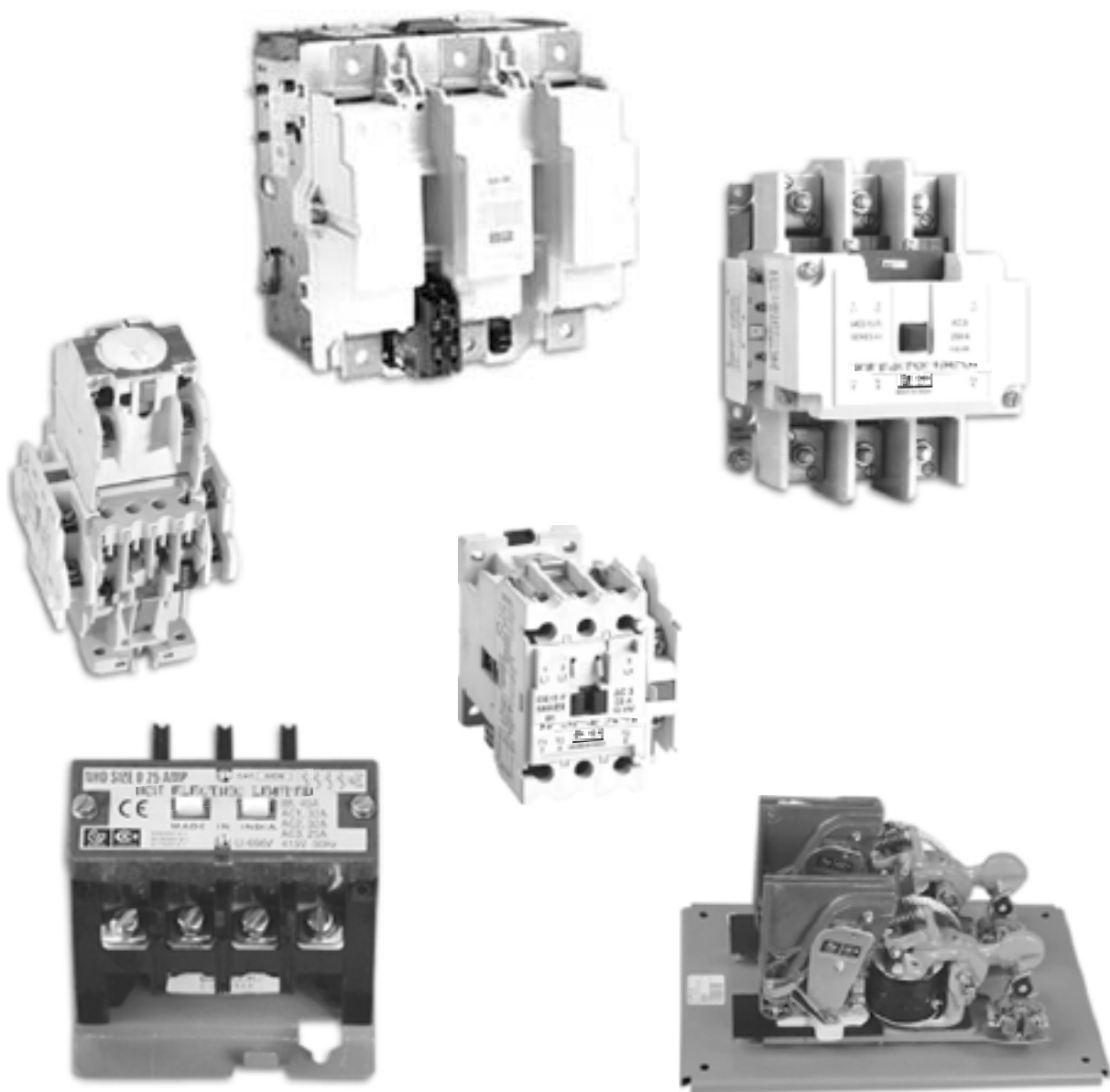
Rating (A) AC-23A	Cat No.	Fuse Type	Type	MRP Rs.
32A	FS0N	BOLTED	TP	1620
63A	FS1N	BOLTED	TP	2220
SHROUD	AC21TS			143
1NO+1NC	AC21EB11	for FS0 / FS1N		422
NEUTRAL	AC21L	for FS0 / FS1N-		193



Switch Disconnecter Fuse

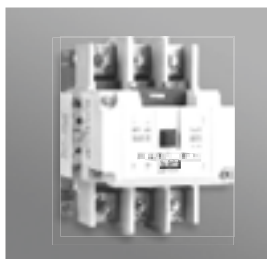
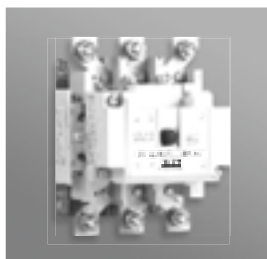
- Conforms to IS 13947-3
- TPN/TP version
- AC 23A duty
- Mechanism with 4 Breaks per pole
- Handle with door interlock and padlock

Contactors



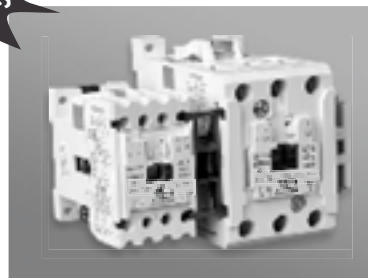
Contactors



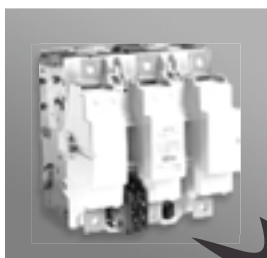
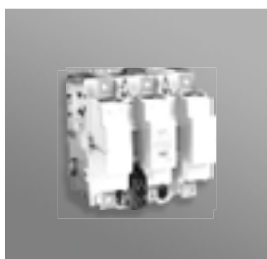


- Conforms to IEC 60947 / IS 13947
- No derating upto 55°C
- 3 Pole and 4 Pole versions
- Widest Range from 6A to 1200A in 7 frame sizes
- Snap Open design for easy inspection
- Self Lifting Screws for quick termination
- Superior grade material with high temperature withstand
: Ideal for stringent duty applications
- Special Coils resulting in extremely low energy consumption
- Successfully tested for Type - 2 coordination

**Design
Flexibility**



- Interlocking 2 Different frames using a common Mechanical Interlock (Upto 73A)



BCH Series : From 400A to 1200A

- Conforms to IEC60947 / IS 13947
- Universal Control : Same coil for AC and DC Supply
- Delayed Drop Off feature for networks with transient power off problem ensuring continuity of power supply
- Special magnet design for reduced shock and vibration
- Front open design for ease of inspection

**Suitable for
1000V operation
(400A to 860A)**

Freedom Series 3 Pole AC Control

Size	AC1 Rating	AC3 Rating 415 V			Aux. Contact	Cat. No.	MRP Rs.	Lot Size
		A	HP	KW				
A	20	6	3	2.2	1NO 1NC	CE15ANS3 ■ B CE15ANC3 ■ B	695	1
B	20	9.1	5.5	4	1NO 1NC	CE15BNS3 ■ B CE15BNC3 ■ B	790	
C	20	12	7.5	5.5	1NO 1NC	CE15CNS3 ■ B CE15CNC3 ■ B	895	
D	32	16	10	7.5	1NO+1NC -	CE15DN3 ■ B CE15DN3 ■	985 905	
E	40	25	15	11	1NO+1NC -	CE15EN3 ■ B CE15EN3 ■	1420 1315	
F	40	32	20	15	1NO+1NC -	CE15FN3 ■ B CE15FN3 ■	2835 2730	
G	60	40	30	22	1NO+1NC -	CE15GN3 ■ CE15GN3 ■ NB	4300 4125	1
H	75	50	33.5	25	1NO+1NC -	CE15HN3 ■ CE15HN3 ■ NB	5440 5320	
J	80	65	50	37	1NO+1NC -	CE15JN3 ■ CE15JN3 ■ NB	7300 7200	
K	80	73	50	37	1NO+1NC -	CE15KN3 ■ CE15KN3 ■ NB	7540 7440	
L	140	80	53	40	1NO+1NC	MCE15LN3 ■ 5	9565	1
M	150	95	62	47	1NO+1NC	MCE15M0N3 ■ 5	10950	
M-5	150	110	80	60	1NO+1NC	MCE15MN3 ■ 5	12355	
N	300	140	100	75	1NO+1NC	MCE15NN3 ■ 7	16930	1
Q	300	185	120	90	1NO+1NC	MCE15QN3 ■ 7	22900	
R	300	200	150	100	1NO+1NC	MCE15RN3 ■ 7	25935	
S0	315	265	186	140	1NO+1NC	MCE15S0N3 ■ 7	30940	
S	315	300	220	160	1NO+1NC	MCE15SN3 ■ 7	36655	

■ For Coil Voltage Codes refer Table on page 20

Freedom Series 3 Pole AC/DC Control

Size	AC1 Rating (A)	AC3 Rating 415 V			Aux. Contact	Cat. No.	MRP Rs.
		A	HP	KW			
BCH54	600	400	320	240	2NO+2NC	BCH54.3.22 ■	42680
BCH55	600	450	320	240	2NO+2NC	BCH55.3.22 ■	58400
BCH57	760	550	420	315	2NO+2NC	BCH57.3.22 ■	64220
BCH62	1000	700	533	400	2NO+2NC	BCH62.3.22 ■	123380
BCH64	1000	860	666	500	2NO+2NC	BCH64.3.22 ■	199095
BCH76	1200	1000	800	600	1NO+2NC	BCH76.3.12 ■	373380
BCH78	1350	1200	933	700	1NO+2NC	BCH78.3.12 ■	400440

For DC control circuit of contactor size BCH76 / BCH78 add Rs. 2550

■ For Coil Voltage Codes refer Table on page 20

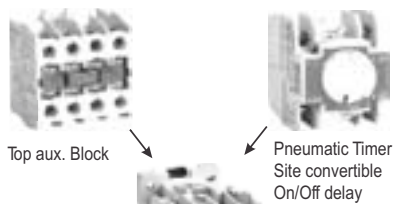


100% Rated
4th Pole

Freedom Series 4 Pole AC Control

AC1 Rating (A)	Cat. No.	MRP Rs.
20	CE15CN4 ■	1175
32	CE15DN4 ■	1235
40	CE15EN4 ■	1875
60	CE15GN4 ■ NB	4525
75	CE15HN4 ■ NB	6015
80	CE15JN4 ■ NB	6435

Common Accessories 'upto 73A'



Top aux. Block

Pneumatic Timer
Site convertible
On/Off delay



Side aux. Block

Mechanical Interlock



DC Control

- Standard voltages 24VDC , 110VDC , 220VDC

Capacitor Switching



- Ideal solution for Switching single and multiple Capacitor banks upto 25 KVAR
- IP 20



Freedom Series 3 Pole DC Control Type CE16

AC3 (A) at 415VAC	KW	Aux Contact	Cat No.	MRP Rs.
9.1	4	1NO 1NC	CE16BNS3*B CE16BNC3*B	1135 1135
12	5.5	1NO 1NC	CE16CNS3*B CE16CNC3*B	1195 1195
16	7.5	1NO+1NC	CE16DN3*B	1445
25	11	1NO+1NC	CE16EN3*B	1980
32	15	1NO+1NC	CE16FN3*B	4140



Control Relay

Aux Contact	Cat No.	MRP Rs.
2NO+2NC	D16CR22*	1310
3NO+1NC	D16CR31*	1310
4NO	D16CR40*	1310

*Coil Codes:DC control

24V	U1
48V	W1
110V	A1
220V	B1



Contactor : 3 Pole DC Control Type CE15

AC3 (A) at 415VAC	KW	Aux Contact	Cat No.	MRP Rs.
40	22	—	CE15GN3 ■	4860
50	25	—	CE15HN3 ■	6295
65	37	—	CE15JN3 ■	7300
73	37	—	CE15KN3 ■	8725

Freedom Series Capacitor Duty AC Control

Size	Capacitor KVAR at 415 V, 3 Ph, 50 Hz	Cat. No.	MRP Rs.
B	5	CCE 15BN3 ■	1770
D	10	CCE 15DN3 ■	1900
F	15	CCE 15FN3 ■	2570
H	25	CCE 15HN3 ■	3315

- For Coil Voltage Codes refer Table on page 20

2 Pole Contactors



- 16, 25 and 40 A rating
- Wide termination space



2 Pole - 16, 25 and 40A

Ith (A)	AC3 (A) 240V AC	Cat. No.	MRP Rs.	Lot Size
25	16	CPG 216 ■	785	1
45	25	CPG 225 ■	1085	
50	40	CPG 240 ■	1450	

- For Coil Voltage Codes refer Table on page 20

4 Pole Contactors



- Superior Weld Resistant Contacts
- Rugged and heavy duty
- High Grade moulding for extremely long life
- Encapsulated Coil
 - : Shock Proof & Moisture Proof
 - : Withstand large voltage fluctuations

'NHD' Series 4 Pole AC Control

Size	AC3 Rating at 415 V				Cat. No.	MRP Rs.	Lot Size
	AC1 (A)	(A)	HP	KW			
00	25	16	10	7.5	C00N ■	1445	1
0	45	25	15	11	N0N ■	2345	
1	50	40	25	18.5	N1N ■	3730	
Auxiliary Contact Blocks - NHD				1NO+1NC	001CB11	175	10
				2NO	001CB20		
				2NC	001CB02		

- Standard coil voltages are 24, 110, 220/240 & 380/415 V AC, 50 Hz. For voltage codes refer Table on page 20

Denite Purpose Contactors NEW

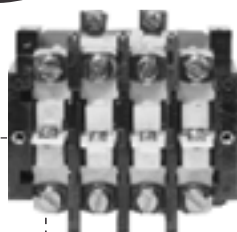
Coil Voltage : 240VAC



- Quick connect plugin terminals
- Specially designed low VA coil

Ith (A)	Single Pole and Single Pole + Neutral No.	Cat. Rs.	MRP Rs.
25A	SP	CPD251CK	530
25A	SPN	CPD251NCK	600
40A	SP	CPD401CK	572
40A	SPN	CPD401NCK	690

Citation Series 3 Pole AC Control



- Wider Terminal space for reliable & durable termination
- Front open design for ease of inspection

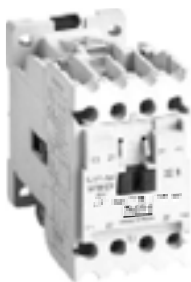
Size	AC3 Rating at 415 V			Cat. No. (with Aux. contact 2NO+2NC)	MRP Rs.	Cat. No. (without Aux. contact)	MRP Rs.
	Amps	HP	KW				
C4	32	20	15	C4NE22 ■	3700	C4NE00 ■	3060
D	40	30	22	MC10DN22 ■	5900	MC10DN00 ■	5150
E	70	50	37	MC10EN22 ■	10575	MC10EN00 ■	9900

- Standard coil voltages are 24, 110, 220, 240 & 415 V AC, 50 Hz. For voltage codes refer Table on page 20

3 Pole Contactors



- From 32 A to 70 A
- Plug in encapsulated coil for fast replacement
- Compact and heavy duty
- Proven & time tested product for heavy duty applications such as crane control



Control Relays Freedom Series

Size	Contact Configuration	Cat No.	MRP Rs.		Lot Size
			AC	DC	
CR	2NO+2NC 3NO+1NC 4NO	D15CR22 ■ D15CR31 ■ D15CR40 ■	885	1310	1

■ For Coil Voltages Codes refer Table on page 20



Control Relays Citation - M Series

Size	Control	Contact Configuration	Cat No.	MRP Rs.	Lot Size
CR	DC	2NO+2NC	DMD20CR22 ■	1565	1
	AC	4NO	MD20CR40 ■	995	1
		3NO+1NC	MD20CR31 ■		
		2NO+2NC	MD20CR22 ■		

■ For Coil Voltages Codes refer Table on page 20

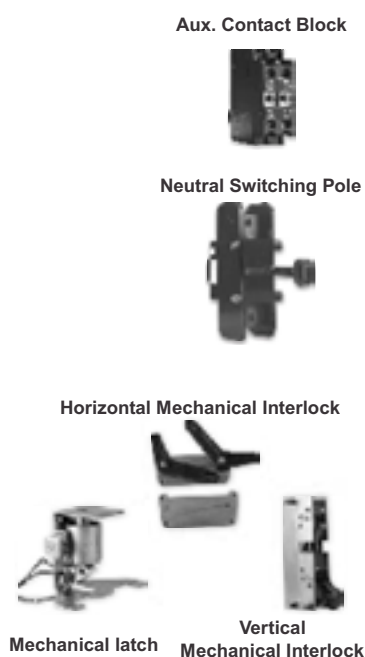
Freedom Series Contactors

Add-On Accessories for Size CR & A to K

Description	Configuration	Cat. No.	MRP Rs.	Lot Size	
Aux. Contact Block (Side mounting)	1NO	C320KGSR10	107	10	
	1NO+1NC	C320KGSR11	270		
	1NC	C320KGSRO1	107		
	2NO	C320KGSR20	270		
Aux. Contact Block (Front Mounting)	1NO	C320KGTC10	107		
	1NC	C320KGTC01			
	2NO	C320KGT*20			
	2NC	C320KGT*02	183		
	1NO+1NC	C320KGT*11			
	2NO+2NC	C320KGT*22			
	3NO+1NC	C320KGT*31	330		
	4NO 3NC+1NO 4NC	C320KGT*40 C320KGT*13 C320KGT*04			
Pneumatic Timer Block "ON/OFF"Delay site selectable	1NO+1NC (0.1 to 30 sec.)	C320TP1	1064		
	1NO+1NC (10 to 180 sec.)	C320TP2			
Mechanical Interlock supplied with Link blocks required for DIN rail Mounted contactors	—	C321KM60	340	1	
Coil surge suppressors for size CR to M	24-48V, 50/60 Hz	MC320LR11	331		
	110-240 50/60HZ.	MC320LR 12			

* Add suffix C for Power Contactors, R for Control Relays. The suffix C/R denote terminal marking as per standard EN5001 and BS5583 on add on Aux. contact blocks used with Contactors / Control Relays

Accessories for Size BCH54 to BCH78



Description	Configuration	Cat No.	MRP Price Rs.
Add on Aux. Contact Block (Side mounting) - For BCH54 to BCH64 - For BCH76 to BCH78	2NO+2NC 1NO+1NC	EF22 EB11	4460 6953
4th Neutral Switching Pole BCH54/BCH55/BCH57	325A 500A	NP325/5 NP500/5	9752 12400
BCH62/BCH64	500A 900A	NP500/6 NP900/6	13061 17275
BCH76/BCH78	500A 900A	NP500/7 NP900/7	18010 19660
Mechanical Interlock-Horizontal Mounting	BCH54/BCH55/BCH57 BCH62/BCH64 BCH76/BCH78	BM5H BM6H BM7H	6110 10852 28770
Mechanical Interlock-Vertical Mounting	BCH54/BCH55/BCH57 BCH62/BCH64 BCH76/BCH78	BM5V BM6V BM7V	6140 10852 25521
Mechanical latch#	BCH54/BCH55/BCH57 BCH62/BCH64	AM5- AM6-	15790 22340

Mechanical latch supplied with AC coils only.

- To complete Cat. No. suffix code given below.

Accessories for Size M-5/N/R/S/L/M/Q/O



Description	Configuration	Cat. No.	MRP Rs.
Aux. Block Side mounting -For size L, M, M-5 -For size N, Q, R, S0, S	1NO+1NC 1NO+1NC	C320KGM11 MC320KB11	420 460
Aux. Block Add-on (Contacts late break type)	1NO+1NC	MC320KAS11	470
Mechanical Interlock -For size L, M, M-5 -For size N, Q, R, S0, S		MC321KM2 MC321KM3	463 1040
Terminal adapter kit comprising size N, Q, R, S0, S	3 links with M10 nuts & bolts	SP37TA	794

Coil Voltage Sux Code for Mechanical Latch AM5- & AM6-

Coil Voltage	110-120	220-240	380-415	440-480
Suffix code	AW4	BA4	LB4	CB4

Spare Arc Chamber-BCH Contactors

Contactor		Cat. No.	MRP Rs.
Size	Rating (A)		
BCH54/BCH55/BCH57	450/550	PF-BCH5	6393
BCH62/BCH64	700/860	PF-BCH6	15901
BCH76	1000	3PF-BCH76	27835
BCH78	1200	3PF-BCH78	34270

Accessories for Citation Contactors

Description	C4&D		E	
	Cat. No.	MRP Rs.	Cat. No.	MRP Rs.
Mechanical Interlock	MC321KM1	412	MC321KM2	463
Base Block (1NO+1NC)	MC320KB2	350	AC35EB11	415
Add-on-Block (1NO+1NC) (Late Break NC)	AC34EA11	370	AC34EA11	370

Spare Contacts set for Freedom Contactors

Size	Consisting of	Cat. No.	MRP Rs.
A	Complete top housing Consisting of fixed & moving contacts	SBANS3 SBANC3 SBAN4	672
B		SBBNS3 SBBNC3 SBBN4	713
C		SBCNS3 SBCNC3 SBCN4	784
D		SBDN3	950
E		SBEN3	1120
F		SBFN3	2200
G	6 Fixed contacts 3 Moving Contacts	6-65-4	1944
H	3 springs	6-65-6	2413
J	6 Arc Bonnets	6-65-15	3280
K	3 Spring Retainer	6-65-17	3390
L	6 Fixed Contacts 6 Pan Head Screws	6-385-L0	3750
M	6 Helical Lock Washers	6-385-M	3970
M-5	3 Moving contacts 3 Springs 3 Retainers 6 Blowouts 6 self tapping screws	6-385	4184
N	6 Fixed contacts 12 CSK screws & washers	6-293	6120
Q	3 Moving contacts 3 Springs Spring Retainers, Self tapping screws & Washers	6-288-Q	11900
R		6-288	11962
S0		6-286-S0	16160
S		6-286	16310
BCH54		CP-BCH54-3	18844
BCH55	Complete set of 6 fixed & 3 moving contacts with hardware, contact springs, spring retainers and arc runners	CP-BCH55-3	21910
BCH57		CP-BCH57-3	30990
BCH62		CP-BCH62-3	57610
BCH64		CP-BCH64-3	70822
BCH76		CP-BCH76-3	176910
BCH78		CP-BCH78-3	198805

Coil set for BCH contactors consists of 2 half coils for each contactor. Magnet Coil & Feeder Group must have the same control voltage. For example, if coil voltage is changed from 110 to 220 volts, then Feeder group should also be changed to 220V

Spare Contacts set for NHD & Citation Contactors

Size	Consisting of	Cat. No.	MRP Rs.
C00N N0N N1N	8 Fixed main contacts 4 Moving main contacts 4 Spring & 4 retainers	SP90A1 SP90B1 SP90C1	749 1820 1905
CPG216 CPG225 CPG240	4 Fixed contacts 2 Main contacts 2 Spring retainers	CPG162PSP CPG252PSP CPG402PSP	368 936 1040
C4	6 Fixed main contacts 6 Pan head screws 6 Helical lock washers	SP34K	1800
MC10D	3 Moving main contacts 3 Compression springs 3 Retainers	6-334	2458
MC10E	Same as above plus 6 Blow outs 6 M5/M4 self tapping screws	6-335	4641

Spare Coil - Size CR & A to K

Description	For Size	Cat. No.	MRP Rs.
Magnet Coil	CR, A, B, C	MC15CW *	370
	D, E, F	MC15FW *	430
	G, H, J, K	MC15KW *	1120
	M-5, L, M	9-2268 *	1325
	N, R, S, Q, O	9-2412 *	2911
Magnet Coil (set of two) Feeder Group	BCH 54/ BCH55/BCH57	B51* FG51*	6385 7730
Magnet Coil (set of two) Feeder Group	BCH62/BCH64	B61* FG61*	20210 26315
Magnet Coil (set of two) Feeder Group	BCH76/BCH78	B8* FG78*	55990 61590

* Suffix Coil voltage code from Table on page 20

Spare Coil for NHD & Citation Contactors

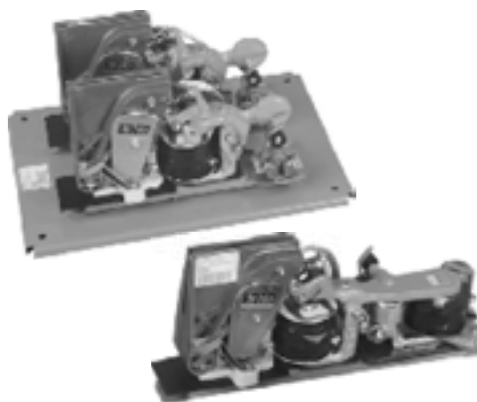
Contactors	Cat. No.	MRP Rs.	Lot Size
Carrier for NHD	SP90CC	171	1
Carrier for CPG	CPG2PCC	97	1
Magnet coils for NHD	SP90MC ■	242	10
Magnet coil for Citation contactors C4 & MC10D	9-2267 ■	823	1
	MC10E	9-2268 ■	1325
Magnet Coil for DC Citation Control Relay	9-2182-1 ■	476	1
Magnet Coil for AC Citation Control Relay	9-2182 ■	604	1

■ To complete Cat. No. suffix voltage code from Table on page 20

DC Contactors BCH

DC Mill Duty Contactor

No. of poles	(A)	Auxilliary Contacts	Cat. No.	MRP Rs.
50 Amperes				
Single pole Normally Open	15A 25A 50A	2NO+2NC 2NO+2NC 2NO+2NC	912x1522 ■ 912x2522 ■ 912x5022 ■	21130
Double pole Normally Open	15A 25A 50A	2NO+2NC 2NO+2NC 2NO+2NC	D912x1522 ■ D912x2522 ■ D912x5022 ■	45430
Mechanically Interlocked 2 Nos. SP NO	15A 25A 50A	2NO+2NC 2NO+2NC 2NO+2NC	M912x1522 ■ M912x2522 ■ M912x5022 ■	50400
150 Amperes				
Single pole Normally Open	150A	2NO+2NC	914x22 ■	36090
Double pole Normally Open	150A	2NO+2NC	D914x22 ■	77390
Mechanically Interlocked 2 Nos. SP NO	150A	2NO+2NC	M914x22 ■	81670
Single pole Normally Closed	150A	1NO+1NC	924x11 ■	37170
Single pole Normally Open with Holdout Coil #	150A	1NO+1NC	934x11 ■	39140
Single pole Normally Open with AC Blow out Coil	150A	2NO+2NC	974x22 ■	45760
300 Amperes				
Single pole Normally Open	300A	2NO+2NC	915x22 ■	52410
Double pole Normally Open	300A	2NO+2NC	D915x22 ■	111630
Mechanically Interlocked 2 Nos. SP NO	300A	2NO+2NC	M915x22 ■	116060
Single pole Normally Closed	300A	1NO+1NC	925x11 ■	52680
Single pole Normally Open with Holdout Coil #	300A	1NO+1NC	935x11 ■	56880
Single pole Normally Open with AC Blow out Coil	300A	2NO+2NC	975x22 ■	66280



- From 50 A to 600 A
- Conforms to NEMA Standards
- Ready to use mechanically interlocked version
- Normally closed version
- Hold on coil for time delay
- Mechanical life : 20 million operation
- Electrical life : 1 million operation

Unique Arc quenching system with blow out coils for switching heavy duty loads

DC Mill Duty Contactor

No. of poles	(A)	Auxilliary Contacts	Cat. No	MRP Rs.
600 Amperes				
Single pole Normally Open	600A	2NO+2NC	916x22 ■	116820
Double pole Normally Open	600A	2NO+2NC	D916x22 ■	242580
Mechanically Interlocked 2 Nos. SP NO	600A	2NO+2NC	M916x22 ■	246510
Single pole Normally Closed	600A	1NO+1NC	926x11 ■	120080
Single pole Normally Open with Holdout Coil#	600A	1NO+1NC	936x11 ■	148420
Single pole Normally Open with AC Blow out Coil	600A	2NO+2NC	976x22 ■	147130

For 934 / 935 / 936 with holdout coil, suffix voltage code from table for 150, 300 & 600 Amps replace 'x' by 'y' for surface mounting rear connection, 'z' for elevated mounting rear connection

* Add Rs. 2120 for AC Control

Double Pole DC Mill Duty Contactor

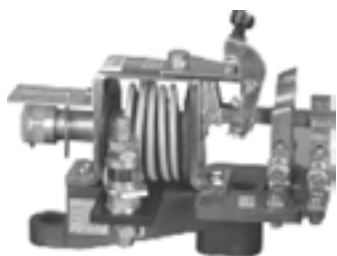
A	Auxilliary Contacts	Cat. No.	Unit Price Rs.
150A	2NO+2NC	954x22 ■	Contact Branch office for Price
300A	2NO+2NC	955x22 ■	

DC Contactors BCH

DC Mill Duty Contactors - Spares

Description	Qty. Reqd.	50A		150A		300A		600A	
		Cat. No.	MRP Rs.	Cat. No.	MRP Rs.	Cat. No.	MRP Rs.	Cat. No.	MRP Rs.
DC Arc Chute Assy. Consisting of a. LH Arc Shield b. RH Arc Shield c. DC Blow Out Arc Horn d. DC Blow Out Arc Piece e. DC Blow Out Spacer Assy. f. Polarity Wire g. Latch Strips (Top & Bottom) h. Hardware for Polarity Wire & Latch	1 Set	9C9J101*	10700	9C9P101	18330	9C9T101	26580	9C9V101	57870
AC Arc Chute Assy. Consisting of a. LH Arc Shield b. RH Arc Shield c. AC Blow Out Pole Piece d. AC Blow Out Spacer Assy. e. Polarity Wire f. Latch Strips (Top & Bottom) g. Hardware for Polarity Wire & Latch	1Set	-	-	9C9P102	30770	9C9T102	43960	9C9V102	96670
AC/DC LH Arc Shield	1	9C9J103	4000	9C9P103	6940	9C9T103	9660	9C9V103	21950
AC/DC RH Arc Shield	1	9C9J104	4000	9C9P104	6940	9C9T104	9660	9C9V104	21950
Fixed & Moving Contacts	1 Set	9C9J105	2310	9C9P105	3190	9C9T105	5170	9C9V105	14110
Contact Lever with Braid	1 Set	9C9J106	2820	9C9P106	4600	9C9T106	6090	9C9V106	10585
Set of Armature Spares Consisting of a. Adjusting Pin b. Contact lever spring c. Contact lever spring pin with circlip d. Armature hinge pin e. Armature Securing pin	1 Set	9C9J107	990	9C9P107	1380	9C9T107	2000	9C9V107	2910
Set of Armature Spares for 924, 925, 926 Consisting of a. Adjusting Pin b. Contact lever spring c. Contact lever spring pin with circlip d. Armature hinge pin e. Armature Securing pin f. Armature spring g. Spring retaining washer	1 Set	-	-	9C9P108	1690	9C9T108	2515	9C9V108	3615
Set of Armature Spares for 934/935/936 Consisting of a. Adjusting pin b. Contact lever spring c. Contact lever hinge pin d. Armature hinge pin e. Armature securing pin f. Armature spring g. Spring retaining washer h. Adjusting screw	1 Set	-	-	9C9P109	2020	9C9T109	2990	9C9V109	3835
Terminal Block	1	9C9J110	1285	9C9P110	1690	9C9T110	2370	9C9V110	2960
No Volt Coil for 912, 914, 915, 916, 934, 935 & 936 **Suffix voltage code	1	9C9J111■	4790	9C9P111■	7330	9C9T111 ■	9660	9C9V111 ■	16650
No Volt Coil for 924, 925, 926 **Suffix voltage code	1	-	-	9C9P112■	9660	9C9T112 ■	15020	9C9V112 ■	24260
Coil clamp for 914 & 934	1	-	-	9C9P118	170	-	-	-	-
Coil clamp for 924, 915, 935, 916 & 936	1	-	-	9C9P118	170	9C9T118	170	9C9V118	315

- Suffix coil voltage code from table on page 20 * Only item a & b is supplied in this set
- Please add Rs. 2160 for AC control



- Magnetic Operated Overload relay for heavy duty applications
- From 1.5A to 600A
- Instantaneous and Time delay tripping
- Manual and automatic resetting
- 1NO + 1NC Contacts

DC Mill Duty Contactors - Spares & Accessories

Description	Cat. No.	MRP Rs.
1NO+1NC Auxilliary Contact Block	AC10E11	4250
2NO Auxilliary Contact Block	AC10E20	4250
2NC Auxilliary Contact Block	AC10E02	4250
Single unit driver with mounting plate (50 A)	9C9J115	660
Double unit driver with mounting plate (50 A)	9C9J116	960
Single unit driver with mounting plate (150-600A)	9C9P116	705
Double unit driver with mounting plate (150-600A)	9C9P117	1040
Hold out coil for 934, 935 & 936	9C9P113 ■	11660
Condenser 50 + 50uF for 934, 935 & 936	9C9P114	710
Mechanical interlock for 150/300/600A	AC10M4/ M8/M12	4740
Rectifier 110/240 V	SP30R	2390

- Suffix voltage code from Table on page 20

DC Magnetic Overload Relays *

Cat. No.	Coil No.	Continuous Rating	Range Amps	MRP Rs.
B3A23	159-10	2.8	1.5 to 3.5	12250
B3B23	159-5	3.9	3 to 7	
B3C23	159-4	5.4	5 to 13	
B3E23	159-3	10.9	8 to 24	
B3F23	159-2	16.9	10 to 30	
B3G23	159-1	21.9	20 to 40	
B3H23	159-8	34.9	25 to 65	
B3J23	159-6	50.0	35 to 75	
B3K23	179-39	69.0	40 to 120	14340
B3L23	179-38	109.0	70 to 190	
B3M23	179-37	179.0	100 to 300	
B3N23	179-36	250.0	200 to 600	15650
B3Y23	179-36.2	199.0	200 to 600	
B3P23		549.0	300 to 900	19040
B3R23		500.0	500 to 1500	

* With 1NO + 1NC Contacts

Hold Out Coil details for 934/935/936

Hold out coil code	Voltage
494-1	400/500
494-2	100/125
494-5	200/250 & 400/550
494-7	400/450
492-12	100/125
494-43	200/250 & 400/550

Coil Voltage Table

BCH

COIL VOLTAGE:MASTER TABLE

	PRODUCT	24V		48V		55V	110V		160-220V	220V		220-240V	240V	250V	275V	190-400V	260-400V	380V	380-415V	415V	440V	550V	
		AC	DC	AC	DC	DC	AC	DC	-	AC	DC	AC	AC	DC	DC	AC	AC	AC	AC	AC	AC	AC	DC
	CR Relay	U	U3	W	W3	-	A	A3	-	B	B3	-	K	-	-	-	-	L	-	M	C	D	-
FREEDOM	CE15A-F	U	U3	W	W3	-	A	A3	-	B	B3	-	K	-	-	-	-	L	-	M	C	D	-
	CE15G-K	U	U3	W	W3	-	A	A3	-	B	B3	-	K	-	-	-	-	L	-	M	C	D	-
	MC15L-M5	U	-	W	-	-	A	-	-	B	-	-	K	-	-	-	-	L	-	M	C	D	-
	MC15N-S	U	U3	-	-	-	A	A3	-	B	-	-	K	-	-	-	-	L	-	M	-	D	-
NHD	GH54-64	-	-	-	-	-	110	110	-	220	220	220	220	-	-	-	-	380	380	380	440	-	-
	GH76&78	-	-	-	-	-	A7	A17	-	B7	-	H	-	-	-	-	-	-	-	-	-	-	-
	CPG216	U	-	-	-	-	A	-	BW	-	-	H	-	-	-	-	G	-	N	-	C	-	-
	CPG225&240	U	-	-	-	-	A	-	-	-	-	H	-	-	-	-	-	-	N	-	C	-	-
CITATION	SHAKTI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Z	-	-	-	-	C	-	-
	C00N	U	-	-	-	-	A	-	BW	-	-	H	-	-	-	-	G	-	N	-	C	-	-
	N0N-N1N	U	-	-	-	-	A	-	-	-	-	H	-	-	-	-	-	-	N	-	C	-	-
	C4 & D	-	-	-	-	-	A	-	-	B	-	-	K	-	-	-	-	L	-	M	C	-	-
CR RELAY	MC10EN	U	-	-	-	-	A	-	-	B	-	-	K	-	-	-	-	L	-	M	C	D	-
	MD20CR	U	-	-	-	-	A	-	-	B	-	-	K	-	-	-	-	L	-	M	-	-	-
	912X	-	U1	-	-	-	A1R	A1	-	-	B1	-	K1R	F1	-	-	-	-	-	-	-	-	D1
	914;934X	-	U1	-	W1	Q1	A1R	A1	-	-	B1	-	K1R	F1	J1	-	-	-	-	-	-	-	D1
DC CONTACTOR	935X;924;915	-	U1	-	W1	Q1	A1R	A1	-	-	B1	-	K1R	F1	J1	-	-	-	-	-	-	-	D1
	925	-	-	-	-	-	-	A1	-	-	B1	-	K1R	F1	-	-	-	-	-	-	-	-	D1
	916&936	-	U1	-	W1	Q1	A1R	A1	-	-	B1	-	K1R	F1	-	-	-	-	-	-	-	-	D1
	D912-D916	-	-	-	W1	-	A1R	A1	-	-	B1	-	K1R	F1	-	-	-	-	-	-	-	-	-

- AC control is not available for 934, 935, 936 versions.
- For ordering spare coils for D912, D914, D915 and D916 Contactors, please order coils with 50% voltage rating as that of control voltage.
Example to order coils for D914 X 22B1 (which is a 220V DC DP Contactor), please order spare coils with 110V DC rating.



Solid State Relay BCH



- Electronic Switching of loads - silent operation
- Life Over 100 million operations
- High Switching Frequency
- Ideal for dusty & corrosive atmosphere
- Impact & Vibration resistant
- Direct compatibility with PLC
- LED Indication as option

Solid State Relays (SSR)

Single Phase SSR's for Heating Applications

SC9 Series 1-Phase ZERO CROSS Without LED

Cat. No.	MOQ	AC51 Rating	1^2t (A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SC941110L	10	12A	72	600V AC	12-280V AC	4-30V DC	905
SC942110L	10	25A	288	600V AC	12-280V AC	4-30V DC	1100
SC944110L	10	40A	612	600V AC	12-280V AC	4-30V DC	1424

MOQ - Minimum Order Qty.

SC9 Series 1-Phase ZERO CROSS With LED

Cat. No.	MOQ	AC51 Rating	1^2t (A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SC941160L	10	12A	72	600V AC	12-280V AC	4-30V DC	920
SC942160L	10	25A	288	600V AC	12-280V AC	4-30V DC	1110
SC944160L	10	40A	612	600V AC	12-280V AC	4-30V DC	1435
SC945160	10	50A	1500	600V AC	12-280V AC	4-30V DC	2940
SC947160	10	75A	5000	600V AC	12-280V AC	4-30V DC	3270

MOQ - Minimum Order Qty.

SC9 Series 1-Phase ZERO CROSS With LED

Cat. No.	MOQ	AC51 Rating	1^2t (A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SC962160	10	25A	265	1200V AC	24-600V AC	5-30V DC	2374

MOQ - Minimum Order Qty.



Innovation - Performance-Design

- Removable IP20 flaps.
- Only 29 mm height.
- Designed for all types of loads.
- TMS² Technology with very long life expectancy.
- Control Status LED.
- Very low zero cross level.
- UL/cUL, VDE (EN60950), IEC/EN60947-4-3, CE marking

SO9 Series 1-Phase ZERO CROSS With LED

in okpac® Housing IP20 Protection



Cat. No.	MOQ	AC51 Rating	1^2t (A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SO963460*	10	35A	1250	1200V AC	24-600V AC	3.5-32V DC	2113
SO945460*	10	50A	2500	600V AC	12-280V AC	3-32V DC	2670
SO967460*	10	75A	7200	1200V AC	24-600V AC	3.5-32V DC	2884

*Non Sock Items, allow 4-6 weeks delivery time

MOQ - Minimum Order Qty.

Single Phase SSR's for Capacitor Control Applications

SO8 Series 1-Phase With LED

in okpac® Housing IP20 Protection



Cat. No.	MOQ	AC51 Rating	1^2t (A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SO842074*	10	25A	600	600V AC	12-275V AC	3-32V DC	2400
SO863070*	10	35A	1250	1200V AC	24-510V AC	3.5-32V DC	3080
SO845070*	10	50A	2500	600V AC	12-275V AC	3-32V DC	2810

*Non Sock Items, allow 4-6 weeks delivery time

MOQ - Minimum Order Qty.

Solid State Relay BCH

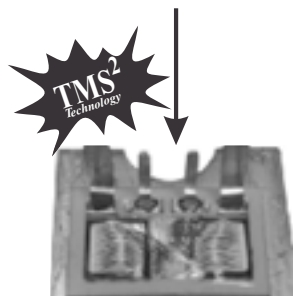
Single Phase SSR's for Motor Control Applications SC7 Series 1-Phase Without LED (Random Switching)

Cat. No.	MOQ	AC51 Rating	AC53 Rating	I^2t (A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SC741110L	10	12A	2.5A	72	600V AC	12-280 AC	4-30V DC	914
SC761110L	10	12A	2.5A	72	1200V AC	24-520V AC	5-30V DC	1373
SC742110L	10	25A	5A	312	600V AC	12-280 AC	4-30V DC	1090
SC762110L	10	25A	5A	265	1200V AC	24-520V AC	5-30V DC	1751
SC744110L	10	40A	9A	612	600V AC	12-280 AC	4-30V DC	1800
SC764110	10	50A	12A	1500	1200V AC	24-520V AC	5-30V DC	3500
SC767110*	10	75A	16A	5000	1200V AC	24-520V AC	5-30V DC	5980
SC768110*	5	95A	20A	11000	1200V AC	24-520V AC	5-30V DC	6631
SC769110*	5	125A	30A	20000	1200V AC	24-520V AC	5-30V DC	10644

*Non Sock Items, allow 4-6 weeks delivery time

MOQ - Minimum Order Qty.

Direct Copper Bonding
Technology



- Fewer joints, fewer layers results in better thermal characteristics
- Extremely low temperature rise ensures long life

SO7 Series 1-Phase With LED in okpac® Housing IP20 Protection (Random Switching)

NEW

Cat. No.	MOQ	AC51 Rating	AC53 Rating	I^2t (A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SO745090	10	50A	12A	2500	600V AC	12-275V AC	3-32V DC	3431
SO767090	10	75A	16A	7200	1200V AC	24-510V AC	3.5-32V DC	5294
SO768090	5	95A	20A	14400	1200V AC	24-510V AC	3.5-32V DC	5890
SO769090	5	125A	30A	24000	1200V AC	24-510V AC	3.5-32V DC	8275

*Non Sock Items, allow 4-6 weeks delivery time

MOQ - Minimum Order Qty.

Three Phase SSR's SVT Series 3-Phase With LED (ZERO CROSS) IP20 Protection



- IP20-RC and VDR Protection
- Designed for all types of load
- Thyristor technology

Cat. No.	MOQ	AC51 Rating	AC53 Rating	I^2t (A ² S) Voltage	Peak Voltage	Operating	Control Voltage	MRP Rs.
DC CONTROL								
SVT861394	5	12A	2.5A	72	1200V AC	24-520V AC	8.5-30V DC	13510
SVT869394	5	125A	32A	20000	1200V AC	24-520V AC	8.5-30V DC	19130
AC CONTROL								
SVT861994	5	12A	2.5A	72	1200V AC	24-520V AC	90-240V AC	10874
SVT864994	5	50A	12A	1500	1200V AC	24-520V AC	90-240V AC	13050
SVT868994	5	95A	24A	11000	1200V AC	24-520V AC	90-240V AC	16714
SVT869994	5	125A	32A	20000	1200V AC	24-520V AC	90-240V AC	19333

MOQ - Minimum Order Qty.

Solid State Relay BCH



SG4 / SG5 Range Proportional Controllers

Dierent Control Possibilities

- Phase angle control
- Full wave pulse control
- Full cycle Fast burst control
- Soft starter

Applications : Light dimmer, Heating, Regulation single ph. Variable Speed Control (Vibrating feeders etc).

Proportional Controllers SG4 / SG5 Series 1-Phase Without LED



Cat. No.	MOQ	AC51 Rating	1 ² t(A ² S)	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SG4 Series							Contact nearest sales office for Prices.
SG441020*	1	10A	72	600V AC	115-265V AC	0-10V DC	
SG444020*	3	40A	1500	600V AC	115-265V AC	0-10V DC	
SG444120*	3	40A	1500	600V AC	115-265V AC	0-5V / Pot [§]	
SG444420*	3	40A	1500	600V AC	115-265V AC	4-20mA	
SG464020*	3	40A	1500	1200V AC	200-460V AC	0-10V DC	
SG464120*	3	40A	1500	1200V AC	200-460V AC	0-5V / Pot [§]	
SG464420*	1	40A	1500	1200V AC	200-460V AC	4-20mA	
SG468020*	1	70A	5000	1200V AC	200-460V AC	0-10V DC	
SG468120	1	70A	5000	1200V AC	200-460V AC	0-5V / Pot [§]	
SG468420*	1	70A	5000	1200V AC	200-460V AC	4-20mA	
SG469020*	3	110A	20000	1200V AC	200-460V AC	0-10V DC	
SG469120*	1	110A	20000	1200V AC	200-460V AC	0-5V / Pot [§]	
SG469420*	1	110A	20000	1200V AC	200-460V AC	4-20mA	
SG5 Series							Contact nearest sales office for Prices.
SG541020*	1	10A	72	600V AC	115-253V AC	0-10V DC	
SG541420*	1	10A	72	600V AC	115-253V AC	0-5V / Pot [§]	
SG541420*	1	10A	72	600V AC	115-253V AC	4-20mA	
SG544020*	3	40A	72	600V AC	115-253V AC	0-10V DC	
SG544120*	3	40A	72	600V AC	115-253V AC	0-5V / Pot [§]	
SG564020*	3	40A	612	1200V AC	200-440V AC	0-10V DC	
SG564120*	3	40A	612	1200V AC	200-440V AC	0-5V / Pot [§]	
SG564420*	3	40A	612	1200V AC	200-440V AC	4-20mA	

*Non Sock Items, allow 4-6 weeks delivery time

MOQ - Minimum Order Qty.



SO4 new generation phase angle controllers allows numerous functions (Over Protection by Varistor)

- Phase angle control
- Full wave pulse control
- Fast burst control
- Soft starter
- Timers
- Flashing relay

Phase Angle Controllers SO4 Series 1-Phase With LED in okpac® Housing IP20 Protection



Cat. No.	MOQ	AC51 Rating	AC53 Rating	$I^2t(A^2S)$	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SO445020*	2	50A	2500	600V AC	90-280V AC	8-30V DC	0-10V DC	Contact nearest sales office for Prices.
SO445120*	2	50A	2500	600V AC	90-280V AC	8-30V DC	0-5V DC	
SO445320*	2	50A	2500	600V AC	90-280V AC	8-30V DC	Pot [§]	
SO445420*	2	50A	2500	600V AC	90-280V AC	-	4-20mA	
SO465020*	2	50A	2500	1200V AC	200-480V AC	8-30V DC	0-10V DC	
SO465320*	2	50A	2500	1200V AC	200-480V AC	8-30V DC	Pot [§]	
SO465420*	2	50A	2500	1200V AC	200-480V AC	-	4-20mA	
SO467420*	2	95A	7200	1200V AC	200-480V AC	-	4-20mA	
SO468020*	2	95A	7200	1200V AC	200-480V AC	8-30V DC	0-5V DC	
SO468120*	2	95A	7200	1200V AC	200-480V AC	8-30V DC	0-5V DC	
SO468420*	2	95A	7200	1200V AC	200-480V AC	-	4-20mA	
SO469020*	2	125A	7200	1200V AC	200-480V AC	8-30V DC	0-10V DC	
SO469120*	2	125A	7200	1200V AC	200-480V AC	8-30V DC	0-5V DC	
SO469420*	2	125A	7200	1200V AC	200-480V AC	-	4-20mA	

*Non Sock Items, please allow 4-6 weeks delivery time Pot[§] = Potentiometer

MOQ - Minimum Order Qty.

Solid State Relay BCH

Reverser Relay

SG/SV/SW Series - 3-Phase Without LED

Cat. No.	MOQ	AC51 Rating	I ² t(A ² S)	Reversing Time	Peak Voltage	Operating Voltage	Control Voltage	MRP Rs.
SG969100*	3	6.6A	612	Adj.0.06s-4.0s	1200V AC	24-500V AC	12-30V DC	Contact nearest sales office for Prices.
SG969300*	3	8.5A	1500	Fixed 70ms	1600V AC	24-520V AC	12-30V DC	
SV969300*	3	8.5A	1500	Fixed 70ms	1600V AC	24-520V AC	12-30V DC	
SV969500*	1	16A	5000	Fixed 70ms	1600V AC	24-520V AC	12-30V DC	
SW960330*	3	4.5A	1500	Fixed 70ms	1600V AC	24-520V AC	12-30V DC	
SW961230*	3	8.5A	1500	Fixed 70ms	1600V AC	24-520V AC	12-30V DC	

*Non Stock Items. please allow 4-6 weeks delivery time

MOQ - Minimum Order Qty.



Common IP20 Protective Cover for SC series SSR.



Heat Sink - 65 mm

- Wide range of Heat sinks offers perfect coordination with all SSRs

Accessories for SSR

Cat. No.	MOQ	Description	MRP Rs.
SC1K4600	20	IP20 Cover SC*	24
SCHS6 DIN	20	Din Clip	105
SCHS2200	5	Heat Sink 2.2K/W	660
SCHS1100	5	Heat Sink 1.1 K/W	2140
SCHS0900	5	Heat Sink 0.9 K/W	2535
SCHS0300	5	Heat Sink 0.3K/W	3640

*IP20 Protective Cover for complete SC range
Refer to nearest branch office for heat sink selection

Suggested Heat Sink Rth values (K/W) for load rating at diff. Ambient Temperature

SSR Rating (A)	25°C	35°C	45°C	55°C
12A	2.2	2.2	2.2	1.1
25A	1.1	1.1	0.3	0.3
40A	0.3	0.3	0.3	0.3
50A	0.3	0.3	0.3	0.3
75A	0.3	0.3	0.3	0.3
95A	0.3	0.3	0.3	-
125A	0.3	0.3	-	-

* For Heat Sink Selection of SO7 / SO8 / SO9 / SG4 / SG5 ranges refer to nearest sales office

Note: Apply heat sink compound between SSR base and external heat sink. In case of closely packed units the ambient temperature condition should be considered carefully. For proper protection, short-circuit protection device (SCPD) (having I²t rating lower than that of SSR I²t) must be used.

Contact nearest Branch Office for Price & technical details for following Special duty Solid State Relays

- SSR with AC Controls
- PCB Mounted SSR
- DC Relays
- Soft Starters
- SSR Integrated with heatsink-Softlife range
- SSR with spring terminals
- Celpac® range - 22.5 & 45 mm pitch with system diagnostics
- SSR for transformer starting
- Three Phase Universal digital Proportional Controllers - SVTA - SWTA range

Overload Relay BCH

*with BCH relays choose
the best protection for
your motors*

Citation Overload Relay



- Wide range : From 0.195 A to 600 A
- Built in Single Phasing Protection
- Ambient temperature compensated
- Test button for checking tripping mechanism
- Field convertible auto/manual reset
- Snap on cover
- Special Mechanism ensuring closest protection to motor
- Contactor mounting & separate mounting
- Successfully tested for Type-2 Coordination
- Suitable for almost all makes of Contactors
- Proven and tested

Citation-M Overload Relays

(Direct Mounting) with built-in single phase protection

Relay Range	Cat. No.	MRP Rs.	Terminal Block for individual mounting	MRP Rs.
0.195 - 0.31 0.30 - 0.48 0.47 - 0.75 0.72 - 1.14 1.07 - 1.70 1.58 - 2.50 2.40 - 3.80 3.80 - 6.00 6.00 - 9.30 8.90 - 13.50	MC305ANA3A MC305ANA3B MC305ANA3C MC305ANA3D MC305ANA3E MC305ANA3F MC305ANA3G MC305ANA3H MC305ANA3J MC305ANA3K	1205	Incoming MC305TB1 Outgoing MC305TB3	73 73
13.20 - 20.00 17.40 - 24.00 22.00 - 30.00	MC305ANA3L MC305ANA3M MC305ANA3N*	1302 1302 1650	Incoming MC305TB2 Outgoing MC305TB3	73 73

* Overload relay type 'N' must be used with terminal block MC305TB3

WP 2 Pole Overload Relay



- Perfect protection to single phase Motors against overloads
- Ambient temperature compensated

2 Pole Overload Relays (Direct Mounting)

Relay Range (A)	Cat. No.	MRP Rs.
1.58-2.50 2.40-3.80 3.80-6.00 6.00-9.30 8.90-13.50 13.20-20.00 17.40-24.00	MC307ANA2F MC307ANA2G MC307ANA2H MC307ANA2J MC307ANA2K MC307ANA2L MC307ANA2M	565 650

WP Overload Relay



- Designed to withstand wide fluctuations in agricultural applications
- Appropriately sensitive relay for increased pump performance

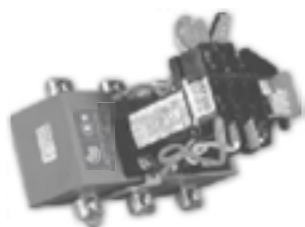
WP Overload Relays for WP & Oil Starter

Relay Range (A)	Cat. No. (WP Starter / Oil Starter)	MRP Rs.
6.00 - 9.30 8.90 - 13.50	MC307ANA3J / MC307ANA3J-OS MC307ANA3K / MC307ANA3K-OS	970
13.20 - 20.00 17.40 - 24.00	MC307ANA3L / MC307ANA3L-OS MC307ANA3M / MC307ANA3M-OS	1070
23.00 - 32.00	MC307ANA3P (Spare for Oil Starter)	1320

DIN rail mounting kit with incoming terminal block

Relay Range (A)	Cat. No.	MRP Rs.
A to K L to N	MC305DM1 MC305DM2	163 163

CT Operated Overload Relay

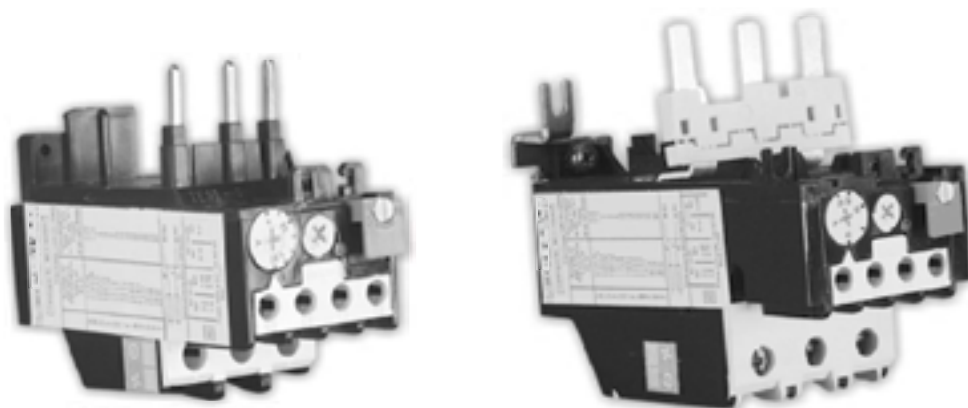


CT Operated Overload Relays-Individual Mounting

Relay Range (A)	Cat. No.	MRP Rs.
24.4-39.0 37.6-60.0 56.4-90.0 84.6-135.0 131.6-210.0 188.0-300.0 263.2-420.0 376.0-600.0	CT1MC305ANA3C CT2MC305ANA3C CT3MC305ANA3C CT4MC305ANA3C CT5MC305ANA3C CT6MC305ANA3C CT7MC305ANA3C CT8MC305ANA3C	1810 2375 3295 6585 7440 8100 8155

Overload Relay BCH

Freedom Overload Relay



- Range : From 0.1A to 80A
- Built in Single Phasing Protection
- Ambient temperature compensated
- Test button for checking tripping mechanism
- Field convertible auto manual reset
- Contactor mounting & separate mounting for complete flexibility

Freedom Overload Relays

Relay Range (A)	Cat. No.	MRP Rs.	Accessories
0.1-0.16	MC318ANA3A	1275	Adaptor for Individual mounting Cat. No. C318F1 MRP Rs. 258
0.16-0.25	MC318ANA3B		
0.25-0.40	MC318ANA3C		
0.40-0.63	MC318ANA3D		
0.63-1.00	MC318ANA3E		
1.0-1.40	MC318ANA3F		
1.3-1.80	MC318ANA3G		
1.7-2.4	MC318ANA3H		
2.2-3.1	MC318ANA3J		
2.8-4.0	MC318ANA3K		
3.5-5.0	MC318ANA3L		
4.5-6.5	MC318ANA3M		
6.0-8.5	MC318ANA3N		
7.5-11	MC318ANA3P		
10.0-14.0	MC318ANA3Q		
13.0-19.0	MC318ANA3R	1400	
18.0-25.0	MC318ANA3S		
24.0-32.0	MC318ANA3T	1760	

For Size G to K Contactors - Direct Mounting

Relay Range (A)	Cat. No.	MRP Rs.	Accessories
18 - 25 22 - 32	MC318GNA3A MC318GNA3B	2670	Adaptor for Individual mounting Cat. No. C318F2 MRP Rs. 340
29 - 42 36 - 52	MC318GNA3C MC318GNA3D	3110	
45 - 63 60 - 80	MC318GNA3E MC318GNA3F	3490	

Electronic Overcurrent RelayBCH

Bhartia Electronic Overcurrent Relay

BOCR SS



- Over Current
- Locked Rotor
- Phase Loss

BOCR SSD



- Over Current
- Locked Rotor
- Phase Loss

BOCR DS3



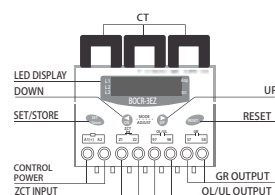
- Over Current
- Locked Rotor
- Phase Loss
- Phase Reversal

BOCR 3DE



- Over Current
- Under Current
- Phase Loss
- Phase imbalance
- Phase Reversal
- Locked Rotor

BOCR 3EZ



- Over Current
- Under Current
- Phase Loss
- Phase Unbalance
- Phase Reversal
- Locked Rotor
- Ground Fault

Model	Cat. No.	Range	MRP Rs.
BOCR SS 05	MP21SS005B4	Electronic Over Current Relay 0.5-6A 220V AC	2805
BOCR SS 05	MP21SS005C1	Electronic Over Current Relay 0.5-6A 440V AC	
BOCR SS 30	MP21SS030B4	Electronic Over Current Relay 3-30A 220V AC	
BOCR SS 30	MP21SS030C1	Electronic Over Current Relay 3-30A 440V AC	
BOCR SS 60	MP21SS060B4	Electronic Over Current Relay 5-60A 220V AC	
BOCR SS 60	MP21SS060C1	Electronic Over Current Relay 5-60A 440V AC	
BOCR SSD 05	MP22SSD005A4	Electronic Over Current Relay 0.5-6A 110V AC	5445
BOCR SSD 05	MP22SSD005B4	Electronic Over Current Relay 0.5-6A 220V AC	
BOCR SSD 30	MP22SSD030A4	Electronic Over Current Relay 3-30A 110V AC	
BOCR SSD 30	MP22SSD030B4	Electronic Over Current Relay 3-30A 220V AC	
BOCR SSD 60	MP22SSD060A4	Electronic Over Current Relay 10-60A 110V AC	
BOCR SSD 60	MP22SSD060B4	Electronic Over Current Relay 10-60A 220V AC	
BOCR DS3 05	MP34DS3005 A4	Electronic Over Current Relay 0.5-6A 110V AC	4505
BOCR DS3 05	MP34DS3005 B4	Electronic Over Current Relay 0.5-6A 220V AC	
BOCR DS3 30	MP34DS3030 A4	Electronic Over Current Relay 3-30A 110V AC	
BOCR DS3 30	MP34DS3030 B4	Electronic Over Current Relay 3-30A 220V AC	
BOCR DS3 60	MP34DS3060 A4	Electronic Over Current Relay 5-60A 110V AC	
BOCR DS3 60	MP34DS3060 B4	Electronic Over Current Relay 5-60A 220V AC	
BOCR 3DE	MP353DE800 A4	Electronic Over Current Relay 0.5-60A 110V AC	15780
BOCR 3DE	MP353DE800 B4	Electronic Over Current Relay 0.5-60A 220V AC	
BOCR 3DE	MP35FDE800A4	Detachable Screen EOCR Model 3DE 0.5-60A 110 VAC	16175
BOCR 3EZ	MP363EZ800 A4	Electronic Over Current Relay 0.5-60A 110V AC	17000
BOCR 3EZ	MP363EZ800 B4	Electronic Over Current Relay 0.5-60A 220V AC	
BOCR 3E2	MP36FEZ800 A4	Detachable Screen EOCR Model 3E2 0.5-60A 110VAC	17590

CTs

CAT No.	Description	MRP Rs.
3CT-H1-100Q	3CT version 100/5	2530
3CT-HH-150Q	3CT version 150/5	2530
3CT-H2-200Q	3CT version 200/5	2530
3CT-H3-300Q	3CT version 300/5	2530
3CT-H4-400Q	3CT version 400/5	2530
Z-CTs (For ground Fault protection, to be used with 3 EZ)		
CAT No.	Description	MRP (Rs.)
ZCT-035Q	ZCT version 35mm hole	2915
ZCT-080Q	ZCT version 80mm hole	3885
ZCT-120Q	ZCT version 120mm hole	6000

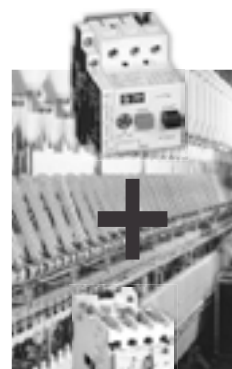
Above 60A, external CT is required



- Conforms to IEC 60947
- Perfect Coordinated system for Motor Control
- Electrical Life : 100000 Operations
- Excellent Current limiting characteristics
- Modular Snap fit Accessories
- 2 Pole version, Only Magnetic Trip Version available on request

MPCB

Type with thermal & magnetic release	Setting Range (A)	Motor Rating in kW at 415 V	MRP Rs.
MPE-01	0.1...0.16	-	2135
MPE-02	0.16...0.25	0.06	
MPE-03	0.25...0.4	0.12	
MPE-04	0.4...0.63	0.18	2360
MPE-05	0.63...1	0.25, 0.37	
MPE-06	1...1.6	0.55	2390
MPE-07	1.6...2.5	0.75, 1.1	
MPE-08	2.5...4	1.5	2450
MPE-10	4...6.3	2.2, 3	
MPE-14	6.3...10	4, 5	2570
MPE-16	10...16	5.5, 9	2790
MPE-20	16...20	11	3165
MPE-22	20...25	12.5	3430



Accessories



Reference	Contacts	MRP Rs.
Auxiliary	Switch	
MPA 0010	1NO	330
MPA 0001	1NC	
MPA 0011	1NO + 1NC	480
MPA 0020	2NO	
Enclosures (IP55)		
MPA-EF	Flush mounted	715
MPA-ES	Surface mounted	790
Voltage Releases		
MPA-U ■	Under Voltage Release	1130
MPA-S ■	Shunt Release	

- A: 110 VAC, K: 240 VAC, M: 415 VAC, U: 24 VAC, R: 42 VAC

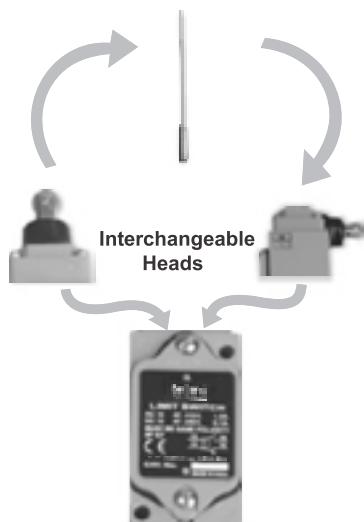
Reference	Tap-o *	MRP Rs.
Bus Bar		
MPA-BB245	2 Tap-o (45mm)	534
MPA-BB345	3 Tap-o (45mm)	680
MPA-BB445	4 Tap-o (45mm)	814
MPA-BB545	5 Tap-o (45mm)	890
MPA-BB263	2 Tap-o (63mm)	534
MPA-BB463	4 Tap-o (63mm)	804
MPA-BBI	Incoming Block	484

*centre to centre distance.

Heavy Duty Limit Switch - Snap Action Type NL IP 67

Type	Description	Cat. No. Screw Terminal (1NO+1NC)	MRP Rs.	Cat.No. Precabled (1NO+1NC)	MRP Rs.	Cat. No. Screw Terminal (2NO+2NC)	MRP Rs.	Cat. No. Precabled (2NO+2NC)	MRP Rs.
Roller Lever	Standard-38MM Standard-76.2mm Adjustable	NLL1 NLL2 NLLA	1365	NLL1C NLL2C NLLAC	1480	NLL1-22 NLL2-22 NLLA-22	2080	NLL1-22C NLL2-22C NLLA-22C	2170
	Maintained Type Maintained Type Maintained Type	NLL1M NLL2M NLLAM	1530	NLL1MC NLL2MC NLLAMC	1600	NLL1M-22 NLL2M-22 NLLAM-22	2300	NLL1M-22C NLL2M-22C NLLAM-22C	2350
Push Roller	Top Side	NLTPR NLSPR	1365 1490	NLTPRC NLSPRC	1480 1600	NLTPR-22 NLSPR-22	2080 2300	NLTPR-22C NLSPR-22C	2170 2350
Push Button	Top Adjustable Side Adjustable	NLTPBA NLSPBA	1365 1490	NLTPBAC NLSPBAC	1480 1600	NLTPBA-22 NLSPBA-22	2080 2300	NLTPBA-22C NLSPBA-22C	2170 2350
Cat Whisker	Nylon Rod Steel Rod	NLCW NLJW	1200 1365	NLCWC NLJWC	1280 1455	NLCW-22 NLJW-22	1980 2080	NLCW-22C NLJW-22C	2080 2170
Fork Type	Roller in same line Offset Rollers	NLLF NLLFO	1530	NLLFC NLLFOC	1600	NLLF-22 NLLFO-22	2310	NLLF-22C NLLFO-22C	2350
	Roller in same line Maintained Offset Rollers Maintained	NLLFM NLLFOM	1795	NLLFMC NLLFOMC	1860	NLLFOM-22 NLLFM-22	2500	NLLFOM-22C NLLFM-22C	2545

- IP 67 degree of Protection
- Choice of 16 Operating Heads
- Interchangeable heads ensures complete modularity and flexibility
- Zinc Die cast body for Heavy duty applications
- Easily replaceable contact blocks
- Precabled version with 2m cable length



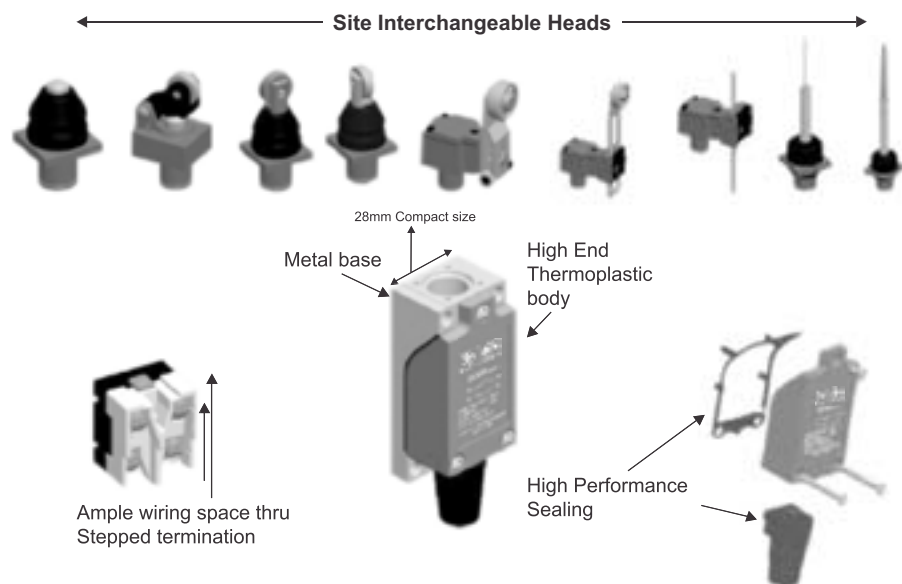
Mini Limit Switch



Type		Cat. No.	MRP Rs.
General Purpose Type		DLSMAR	897
Top Plunger	Standard	DLSMPP	
Push Roller	Standard	DLSMRP	
	Cross	DLSMRPX	
Roller Lever	39mm	DLSMRL	934
	Adjustable	DLSMRLA	
Rod Arm	Adjustable	DLSMJWA	986
Cat's Whisker	Steel Spring	DLSMSW	
Flexible Rod	Nylon	DLSMSR	

Applications

- Lifts and Escalators
- Machine Tools
- Food and Beverages
- Textile Machines
- Packaging & Printing Machines



Precision Limit Switch

1NO+1NC			2NO+2NC		Lot Size
Type of Operator	Cat. No.	MRP Rs.	Cat. No.	MRP Rs.	
Roller Lever	PSRL-L or R	536	PSRL-L-2 or R-2	629	1
Six Inch Lever	PSSIL-L or R		PSSIL-L-2 or R-2		
Top Push Roller	PSTPR*		PSTPR*-2		
Top Push Button	PSTPB		PSTPB-2		
Spare Contact Block	SP20S1	504	SP20S2	641	

* A or B

- Conforming to IEC 60947-5-1
- Compact Design requiring less mounting space
- Zinc Die cast base & high end polyamide cover ensuring robustness & excellent aesthetics
- Unique Cross bar contacts for enhanced reliability
- Dust proof, Water proof & Oil resistance construction
- Snap action contacts
- Frequency of operation 7200 Opms / hr

Limit Switches BCH

Limit Switch for 125°C Application*

Type	Cat. No.	MRP Rs.
with 1NO + 1NC		
Roller Lever	LL1-150SM	*
Top Push Roller	LTPR-150SM	

*Refer to our nearest sales office for specification & details

Heavy Duty General Purpose Limit Switch

Snap Action Type L	Angular Roller Top Plunger	LLGS LPGS	895
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Oil Tight Limit Switch - Snap Action Type L IP 65

Type	Description	Cat. No.	MRP Rs.
Roller Lever	Standard-38MM	LL1	1890
	Standard-76.2mm	LL2	
	Adjustable	LLA	
	Maintained Type LL1	LL1M	1975
	Maintained Type LL2	LL2M	
	Maintained Type LLA	LLAM	
Push Roller	Top	LTPR	1890
	Side	LSPR	2130
Push Button	Top Adjustable	LTPBA	1890
	Side Adjustable	LSPBA	
Cat Whisker	Nylon Rod	LCW	1543
	Steel Rod	LJW	1925
Fork Type	Roller in same line	LLF	1740
	Offset Rollers	LLFO	1740
	Roller in same line	LLFM	2030
	Maintained		
	Offset Rollers	LLFOM	2030
	Maintained		

Oil Tight Limit Switch - Spares

Description	Suitable for	Cat. No.	MRP Rs.
38 mm lever	NLL1, LL1	SP40L1	284
76.2 mm lever	NLL2, LL2	SP40L2	379
Adjustable lever	NLLA, LLA	SP40LA	379
Operating Head	LLGS, LPGS	SP40HLG	567
Operating Head	Lever	SP40HL	599
Operating Head	Top	SP 40HTP*	599
	Plunger	SP 40HSP*	673
Operating Head	Cat Whisker	SP40CW	410
	Steel Rod	SP40JW	567
Limit Switch	1NO+1NC	SP40S1	872
Assembly	2NO+2NC	SP40S2	1443
Fork lever in Line	LLF	SP40LF	473
Fork lever Offset	LLFO	SP40LFO	473
Operating Head	Lever	SP40HLM	706
Maintained			
Oil tight Conduit		SP40CE	328

* B = Button R = Roller

Oil Tight Push Button & Indicating Lights - 'Type T' E 30.5 mm



Range

- Non illuminated and illuminated
- Flush
- Extended
- Mushroom head
- Lever and key type selector switch
- Indicators-Direct/Resistor/Transformer type
- Conforms to EN/IEC-60947-5/IS-13947-5

Features

- Protection degree - IP65
- Rugged construction
- Ideal for motor control centers and control panels
- Proven time tested design

Type	Description	Cat. No.	MRP Rs.	Lot Size
Actuator	Standard flush Button Red Green Black Yellow Blue Amber	TSFB-R TSFB-G TSFB-B TSFB-Y TSFB-BL TSFB-A	158	10
	Long Button Red Green Black Yellow Blue Amber (Orange)	TLB-R TLB-G TLB-B TLB-Y TLB-BL TLB-A	158	10
	Mushroom Head -Spring return Red -Spring return Green -Turn to release Red -Turn to release Green	TMH-R TMH-G TMHL-R TMHL-G	200 200 224 224	10
	Selector Actuator -2 or 3 position	TSSA*••	412	10
	Cylindrical Lock -2 or 3 positions	TCL*••	608	10
	Station Start/Stop Pushbutton	E20EA	713	1
Contact Block	1NO +1NC 2NO 2NC	050N1 050N2 050N3	196	10
Aluminium Diecast Enclosure	One button Two buttons Three buttons Four buttons	TEN-1 TEN-2 TEN-3 TEN-4	530 711 840 980	1
Accessories	Wrench for retaining ring Plug for hole Legend plate	TWN TPL 0501#	194 83 31	1

Note: * Position-2 or 3
■ Cam code 1/2/3
• Function M-maintained, S-Springreturn
Suffix Legend Code

Oil Tight Indicating Light - E 30.5mm

Description	Application	Cat. No.	MRP Rs.	Lot Size
(Without lens) Direct type	AC & DC	TILD•10	289	1
Transformer type	AC	TILT•10	373	1
Polycarbonate Lens	-	LENS*	26	10
Spare Bulb	AC & DC	SP61L	32	1

* Lens available in colours given below • Suffix voltage code lamp

Voltage Code (Direct type lamps)

Volts	6	12	24	48	110	220	240	415
Code	P	S	U	W	A	B	K	M

Voltage Code (Transformer type lamps)

Volts	110/6	110/24	220/6	240/24	415/6
Code	A	A/U	B	K/U	M

Illuminated Push Button - E 30.5mm

Description	Cat. No.	MRP Rs.	Lot Size
Actuator with bulb & terminals	TIPB ■	252	10
Signal lamp transformer	TR ■	206	10
Bulb-6V or 24V	SP61L#	32	1
Legend plate	050L*	21	1
Plastic lens	L2°	26	1

Prices are exclusive of lens

* Suffix standard legend plates code

° Suffix colour code: Milky White 1, Clear 2, Yellow 3, Blue 4, Red 5 & Green 6.

- For Contact Block, please refer Push Button Type T.
- The illuminated buttons can be supplied for 6V or 24V direct operations.
- The Transformers are available in 110/6V, 220/6V, 110/24V & 240/24V

Push Button BCH

Suffix Colour Code - 30.5 mm

Colour	Suffix	Colour	Suffix
Red	1P	Yellow	5P
Green	2P	Clear	7P
Blue	3P		
Amber	4P		

Legend Plate - Suffix Code for E30 & 22.5

Inscription	Suffix code	
	Type T	E22
Start	1	34
Stop	2	35
Inch	3	14
Forward	4	07
Reverse	5	41
UP	6	40
Down	7	04
Slow	9	33
Fast	10	06
Raise	11	-
Left	-	18
Motor Run	-	22
Motor Stop	-	23
Overload Tripped	-	30
Overload Reset	-	31
Power On	-	32
Stop Reset	-	36
Test	-	37
Trip	-	38
Lower	12	-
Off	13	24
On	14	26
Jog	15	-
Emergency Stop	16	05
Reset	17	-
High	19	12
Run	20	-
Close	21	03
Open	22	27
Blank	23	01
On-Off	28	-

Push Button 22.5mm BCH

Push Button & Indicating Lights - 22.5 mm

FLEXI22



Description	Type	Cat. No.	MRP Rs.	Lot Size
Push Button Actuators with Mounting Adaptor	Opaque	Flush	HEA11 *M	58
		Extended	HEA12 *M	61
	Illuminated	Flush	HEB11 *M	90
		Extended	HEB12 *M	90
	Mushroom Head 28mm Colour - Red/Black	Momentary	HEA21 *M	84
		Twist to Release	HEA23 *M	126
		Stayput Key Release	HEA25 *M	263
	Mushroom Head 40mm Colour - Red/Black	Momentary	HEA22 *M	101
		Twist to Release	HEA24 *M	144
Light Source Units (LSU)	Basic Unit with Mounting Adaptor	Lamp Holder & Lens	HPL22 *	55
	LSU with Bulb-Direct Type	6/12/24/48/60/110V ac/dc	HLSUD#	62
	LSU with Bulb-Resistance Type ■	110V ac/dc & 240V ac	HLSUR#	69
	LSU with Bulb-Transformer Type @	Primary : 110V/240V/415V ac Secondary : 6 & 12V ac	HLSUT#	230
LED Indicating Light	Standard 6/12/24/48/60/110/240/415V ac 6-60V ac/dc; 110 & 240V dc	Color - R/Y/G/A	HFB2X *#	153
		Blue	HFB2XL#	320
		Clear	HFB2XC#	452
	Universal 24-240V ac/dc	Color - R/Y/G/A	HFB2X*UH4	199
		Blue	HFB2XLUH4	400
	Surge Protected 12-60V ac/dc; 110/240/415V ac; 110/240V dc	Color - R/Y/G/A	HFB2S *#	193
		Blue	HFB2SL#	345
		Clear	HFB2SC#	485
	Low Voltage Glow Protected 220/240V ac	Color - R/Y/G/A	HFB2P*□	231
		Blue	HFB2PLH	414
	Surge & Low Voltage Glow Protected 220/240V ac	Color - R/Y/G/A	HFB2SP*□	231
		Blue	HFB2SPLH	414
Selector Operators with Mounting Adaptor	Selector Key Operator (Color-Black)	2pos Maintained	Pls refer Ordering Sequence & Circuit Combination Table for exact Cat. Ref.	240
		2pos Spr Ret R>L		240
		3pos Maintained		250
		3pos Spr Ret L>C		250
		3pos Spr Ret R>C		250
		3pos Spr Ret L>C<R		250
	Selector Knob or Lever Opaque	2pos Maintained		173
		2pos Spr Ret R>L		173
		3pos Maintained		173
		3pos Spr Ret L>C		190
		3pos Spr Ret R>C		190
		3pos Spr Ret L>C<R		203
	Selector Knob or Lever Illuminated*	2pos Maintained		203
		2pos Spr Ret R>L		203
		3pos Maintained		203
		3pos Spr Ret L>C		231
		3pos Spr Ret R>C		231
		3pos Spr Ret L>C<R		231

* Colour Code Table 1

Voltage Colour Table 2

@ For extended bulb version, use code HLSUTE#

■ Not suitable for illuminated push button types

Push Button 22.5mm BCH

Push Button - 22.5 mm

FLEXI22



Description	Type		Cat. No.	MRP Rs.	Lot Size
Contact Block		1NO	HCB10	51	10
		1NC	HCB01		
	Early Make	1NO	HCB10EM	54	
	Late Break	1NC	HCB01LB		
		1NO+1NC	HCB11	83	
		2NO	HCB20		

Ordering Sequence for Selector Operators

H	E				M
		A - Opaque ; B - Illuminated	Table 3 - Position/Cam	Table 4 - Type	Table 1 Color

Suffix Code Tables

Table 1		
Applicable for	(*) Color	Code
Opaque, Illuminated	Red	R
Opaque, Illuminated	Yellow	Y
Opaque, Illuminated	Green	G
Opaque, Illuminated	Blue	L
Opaque	Black	B
Illuminated	Amber	A
Opaque	White	W
Illuminated	Clear	C

Table 3	
Selector Operator Version	Code
Sel. Lever 2 pos	8L
Sel. Key 2 pos	8Y
Sel. Knob 2 pos	8K
Sel. Lever 3 pos Cam1	6L
Sel. Key 3 pos Cam1	6Y
Sel. Knob 3 pos Cam1	6K
Sel. Lever 3 pos Cam2	7L
Sel. Key 3 pos Cam2	7Y
Sel. Knob 3 pos Cam2	7K

Table 4		
Applicable for	Type	Code
Selector Operator	Maintained in All Position	D
Selector Operator	Spring Return Right>Centre	R
Selector Operator	Spring Return Left>Centre	T
Selector Operator	Spr. Return Left>Centre<Right	S

Suffix Code Tables

Table 2		
Applicable for	(*) Color	Code
LSU, LED	6V AC/DC (DIRECT)	P4
LSU, LED	12V AC/DC (DIRECT)	S4
LSU, LED	24V AC/DC (DIRECT)	U4
LSU, LED	48V AC/DC (DIRECT)	W4
LSU, LED	60V AC/DC (DIRECT)	Y4
LSU	110V AC/DC (DIRECT)	A4
LSU	110V AC/DC (RESISTOR)	A4
LED	110/120V AC	E
LED	110/120V DC	E1
LED	220/240V AC	H
LED	220/240V DC	H1
LSU	240V AC (DIODE+RESISTOR)	K
LSU	110V/6V (TRANSFORMER)	AP
LSU	110V/24V (TRANSFORMER)	AU
LSU	240V/6V (TRANSFORMER)	KP
LSU	240V/24V (TRANSFORMER)	KU
LSU	415V/6V (TRANSFORMER)	MP
LSU	415V/24V (TRANSFORMER)	MU
LED	415V AC	M
LED	220/240V AC (DIODE+RESISTOR)	H

Note : Key type Sel Operator available in Opaque version & Black color only.

Push Button 22.5mm BCH

	Description	Type	Cat. No.	MRP Rs.	Lot Size
Spares & Accessories	Filament Bulb	Normal Bulb	9ED2#	20	10
	Filament Bulb	Extended Bulb	9ED3#	20	
	Mounting Adaptor		HMR	17	
	Lens for Indicating Lamp		H8ED1*	20	1
	Knob for Illum. Selector Actuator		H9ED1K*	20	
	Lever for Illum. Selector Actuator		H9ED1L*	20	
	Legend Plate with Std Inscription		8EA9 +	17	
	Rubber Boot for IP66 Protection	Flush/Extended PB	HRB*	28	
	Padlock to Prevent Oeration		8EA1	53	

* Color Code Table 1 # Voltage Code Table 2 + See E 30 marking

SELECTION CRITERIA FOR 3 POSITION SELECTOR OPERATOR CAM:

Selector Operators with CAM1 :

- When the Selector operator lever / knob is moved to the left side, it operated the left side contact block.
- When the Selector operator lever / knob is moved to the right side, it operates the right side contact block.

Selector Operator with CAM2 :

- When the Selector operator lever / knob is moved to the left side, it operates the left side contact block.
- When the Selector operator lever / knob is moved to the right side, it operates **both the right side contact block and the left side contact blocks.**

Push Button & Indicating lights

FLEXI22



Range

- Flush and Extended Push buttons
- Selector Operators knob & lever
- Non Illuminated and illuminated type
- Mushroom head-28mm, 40mm, 60mm (coming soon)
- LED Indicating lights
- Filament type Indicating lights

Features

- Chrome plated metal bezel
- Modular Snapfit construction
- Oil Tight, Water tight and corrosion-resistant.
- IP65 Degree of Protection
- Anti Rotation Mounting
- Possibility to add 10 Contacts (Coming Soon)
- Operating temperature -20° C to 60° C

Foot Switch BCH

Number of Contact Blocks	Total contacts available	No.of position	Description	Cat. No.	MRP Rs.	Lot Size
One	1NO+1NC	2	With Guard	FSGX1	3050	1
One	1NO+1NC	2	With Shield	FSSX1	3060	
One	1NO+1NC	2	With Latch	FSGX1L	3220	
Two	4NO+4NC	2	With Shield & Latch	FSSY2L	4320	
One	2NO+2NC	2	With Guard	FSGX2	3320	
One	2NO+2NC	2	With Latch	FSGX2L	3460	
Two	2NO+2NC	2	With Guard	FSGY1	3740	
Two	2NO+2NC	2	With Latch	FSGY1L	3990	
Two	4NO+4NC	2	With Guard	FSGY2	4370	
Two	4NO+4NC	2	With Latch	FSGY2L	4450	
Two	2NO+2NC	3	With Guard	FSGZ1M	3810	
Two	4NO+4NC	3	With Latch	FSGZ2M	4360	
Spare Contact Block	1NO+1NC			SP20S1	504	1
	2NO+2NC			SP20S2	641	

Note : Latching unit (with suffix L) is provided with X & Y versions only.



- 2 Position and 3 Position
- 1NO+1NC/2NO+2NC/4NO+4NC contact blocks
- Guard and Shielded versions
- Oil tight and water tight enclosure for contact block
- Mechanical and electrical life : 10 million operation
- Suited for heavy duty applications such as :
 - Machine Tools
 - Rubber and Tyre making machines
 - SPMs
 - Welding Machines

AC Solenoids & BrakesBCH



AC Solenoid - Pull Type

Type	Stroke Length mm	Max. Pull (Continuous Duty) Kg.	Cat. No.	List Price Rs.
B	25.0	1.25	SLB-	2905
D	31.4	6.75	SLD-	4290

* The standard coil voltages are 110, 220 & 415 V 50 Hz. AC

AC Solenoid Brake - Type S

Type of Brake	Wheel dia.		Max. Torque		Duty	Brake		Drum	
	Inch	mm	Lb. ft.	Nm		Cat No.	List Price Rs.	Cat. No.	List Price Rs.
S-4	4	101.6	10	13.6	Continuous	S-42■	7668	AC50D4	1300
S-5	5.5	139.7	25 35	34.0 48.0	Continuous Intermittent	S-51■ S-52■	10825	AC50D5	1793
S-7	7	177.8	50 75	68.0 102.0	Continuous Intermittent	S-71■ S-72■	12556	AC50D7	2019

Range

- Solenoids:
 - Type : SLB - 25 mm stroke length
 - Type : SLD - 31.4 mm stroke length
- AC Brakes
 - 4" Dia
 - 5.5" Dia
 - 7" Dia
- Drums

Features

- Class F insulation of the coil
- Continuous & Intermittent duty
- Long life & ease of maintenance
- Ideally suited for applications such as :
 - Cranes
 - Hoists
 - Machines
 - Valves
 - Conveyers

AC Solenoid Brake - Type S-10

S-250	9.84	250	109	147.0	Continuous	S-2501*	26584	-	3832
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- The standard coils are 110, 220 & 415 V 50 Hz. AC

- To complete Cat. No. suffix voltage code given below
- Brake drums are of standard specification
- For Intermittent duty (S-250 brake), please contact branch office

AC Solenoid Brakes - Voltage Codes

Coil Voltage	110	220	415
AC	A	B	M

Spares For AC Solenoid Brake

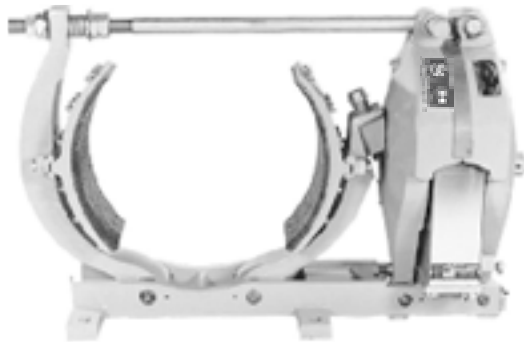
Description	Brake Size : 4"		Brake Size : 5.5"		Brake Size : 7"	
	Cat. No.	List Price Rs.	Cat. No.	List Price Rs.	Cat No.	List Price Rs.
Brake lining	SP50L1	990	SP50L2	1470	SP50L3	1980
Brake shoe Assembly*	SP50SA1	2540	SP50SA2	3590	SP50SA3	5920
Brake Coil -Continuous -Intermittent	SP50MC01	1430	SP50MC21■ SP50MC22■	2860	SP50MC21■ SP50MC22■	2860

- Prices are per set of 2 nos.,

brake shoe assembly is with lining.

- To Complete Cat. No. suffix voltage code is given in table, above.

DC Brakes BCH



- Shunt and Series type versions in sizes :
8 Inch to 30 Inch
160 mm to 800 mm
- Conforms to NEMA and AISE Standards
- Fail safe operation
- Unique design for maximum torque and minimum shoe wear
Brakes equivalent to Russian 'TK П' design also available

Proven and time tested

Heavy duty encapsulated coil with class 'F' insulation

Optional Features

- Limit Switch Attachment
- Manual Release
- Residual magnetism adjustment

DC Electromagnetic Brakes

Shunt Type				Resistance & Rectifier Panel			
Drum Size	Cat.No.	Torque	List Price Rs.	Single Brake		2 Brakes Simult.Operation	
		KG-M		Cat.No.	List Price Rs.	Cat.No.	List Price Rs.
150mm	SMH150	Details available on request					
160mm	SMH160	8	32170	CACS1*MAE	33780	CACS2*MAE	46940
8"/200mm	SMH8	13.8	37875	CACA1*MAE	37660	CACJ2*MAE	48810
	SMH200	13.8					
10"/250mm	SMH10	27.7	46500	CACB1*MAE	39970	CACK2*MAE	55200
	SMH250	27.7					
13"/300mm	SMH13	76.0	76130	CACC1*MAE	43290	CACL2*MAE	63580
	SMH300	76.0					
16"/400mm	SMH16	138.8	121380	CACD1*MAE	49380	CACM2*MAE	69190
	SMH400	138.8					
19"/500mm	SMH19	277.0	190305	CACE1*MAE	58571	CACN2*MAE	85750
	SMH500	277.0					
23"/600mm	SMH23	555.0	303820	CACF1*MAE	75520	CACP2*MAE	105330
	SMH600	555.0					
30"/700mm	SMH30	1242.0	676590	CACG1*MAE	298200	-	-
	SMH700	1242.0					
800mm	SMH800	Details available on request					

* For control supply i.e. A=110 V, B=220 V, K=240V and M=415 V AC

1. DC Electromagnetic Brakes are suitable to operate on:
For AC Power - Resistance & Rectifier Panel
For DC Power - Series Resistance Box

- All Brakes are Supplied for Continuous Duty
- Resistance & Rectifier Panel is supplied without transformer.
- Control Transformer (Optional) can be supplied at extra cost. Please add Rs. 4,385/- per unit with the LP of Resistance & Rectifier Panel. Please add 'TR' with respective panel cat. ref. to obtain final cat. Code of such panel with control transformer.

Resistance Boxes for DC Electromagnetic Brakes

Shunt Type			Permanent Series Resistance Box for 230 V DC Supply		Permanent Series Resistance Box for 230 V AC Supply		SPARE	
							Permanent & Economy Resistance Box for 415 V AC Supply	
Size	Cat. No.	Torque KGM	Cat. No.	List Price Rs.	Cat. No.	List Price Rs.	Cat. No.	List Price Rs.
150mm	SMH150	Details available on request						
160mm	SMH160	8	CDCS101D	4642	CARS10KE	4240	CACS10ME	8580
8"/200mm	SMH8	13.8	CDCA101D	4815	CARA10KE	4390	CARA10ME	8580
	SMH200	13.8	CD1A101D*					
10"/250mm	SMH10	27.7	CDCB101D	5721	CARB10KE	5210	CARB10ME	8580
	SMH250	27.7	CD1B101D*					
13"/300mm	SMH13	76.0	CDCC101D	6602	CARC10KE	6001	CARC10ME	9820
	SMH300	76.0	CD1C101D*					
16"/400mm	SMH16	138.8	CDCD101D	7004	CARD10KE	6380	CARD10ME	11310
	SMH400	138.8	CD1D101D*					
19"/500mm	SMH19	277.0	CDCE101D	7355	CARE10KE	6710	CARE10ME	12320
	SMH500	277.0	CD1E101D*					
23"/600mm	SMH23	555.0	CDCF101D	8370	CARF10KE	7620	CARF10ME	13370
	SMH600	555.0	CD1F101D*					
30"/700mm	SMH30	1242.0	CDCG101D	20324	-	-	CARG10ME	22864
	SMH700	1242.0	CD1G101D*					
800mm	SMH800		Details available on request					

1. DC Electromagnetic Brakes are suitable to operate on:
 For AC Power - Resistance & Rectifier Panel
 For DC Power - Series Resistance Box

- All Brakes are Supplied for Continuous Duty
 * These cat. references are meant for intermittent duty

Series Type - DC Electromagnetic Brakes

Brake Size	Motor Frame No. (Max.)	Half Hour Rating			One Hour Rating			List Price Rs.
		Torque KGM	Max. FLC (A)	Cat. No.	Torque KGM	Max. FLC (A)	Cat. No.	
8"/200mm	402,802A,403, 602, 802B	13.8	29	SME8H1 SME200H1	8.97	21	SME801 SME20001	78040
			44	SME8H2 SME200H2		31	SME802 SME20002	
10"/250mm	404,603,802C, 406,604,803	27.7	57	SME10H1 SME250H1	18.0	40	SME1001 SME25001	111350
			77	SME10H2 SME250H2		57	SME1002 SME25002	
13"/300mm	408,606,804, 410,608,806	76.0	126	SME13H1 SME300H1	49.4	95	SME1301 SME30001	150880
			176	SME13H2 SME300H2		132	SME1302 SME30002	
16"/400mm	412,610,808	138.8	245	SME16H1 SME400H1	90.2	185	SME1601 SME40001	233870
19"/500mm	414,612,810, 416,614,812	277.0	368	SME19H1 SME500H1	180.0	272	SME1901 SME50001	352432
			500	SME19H2 SME500H2		360	SME1902 SME 50002	
23"/600mm	418,616,814 618,816	555.0	740	SME23H1 SME600H1	361.0	540	SME2301 SME60001	570210
			960	SME23H2 SME600H2		730	SME2302 SME60002	

- During ordering, besides brake drum dia, please confirm duty rating, current rating & motor frame Nos.
- Above current ratings are for 230 V DC Series Motors.
- To convert KGM to LB.FT. multiply by 7.25

Spares & Accessories - DC Electromagnetic Brakes

Description	150/160mm		8"/200mm		10"/250mm		13"/300mm	
	Cat No.	List Price Rs.	Cat No.	List Price Rs.	Cat No.	List Price Rs.	Cat No.	List Price Rs.
 Coil Shunt	9GDS01	21710	9GDA01	23660	9GDB01	28140	9GDC01	45413
 Coil Series for inch for mm	9GDS02/ 9GDS03	-	9GDA02/ 9GDA03	57222	9GDB02/ 9GDB03	89710	9GDC02/ 9GDC03	116032
 Torque Adj. Screw Assembly	9GDS04	2051	9GDA04	2143	9GDB04	2143	9GDC04	3741
 Torque Spring	9GDS05	5614	9GDA05	5860	9GDB05	6933	9GDC05	11230
 Wedge Assembly with Bolt, Spring and Washers	9GDS20/ 9GDS22	784	9GDA20/ 9GDA22	911	9GDB20/ 9GDB22	1050	9GDC20/ 9GDC22	1620
 Pin set for Lever & Armature Consisting of a) Pin Lever 2 Nos. b) Pin armature 2 Nos.	9GDS06	2825	9GDA06	2962	9GDB06	2962	9GDC06 9GDC06-2#	3741
 Collar Set of Lever & Armature Consisting of a) Collar Lever 4 Nos. b) Collar Armature 4 Nos.	9GDS07	2825	9GDA07	2962	9GDB07	2962	9GDC07	3741
 Bush Set for Lever & Armature Consisting of a) Bush Lever 4 Nos. b) Bush Armature 4 Nos.	9GDS08	5614	9GDA08	5894	9GDB08	5894	9GDC08	6420
 Pull Rod Assembly with nuts, spring & washer	9GDS29	2280	9GDA29	2392	9GDB29	2962	9GDC29	4561
 Grease Nipple (1 set consist 8 Nos.)	9GDS09	784	9GDA09	835	9GDB09	785	9GDC09	784
 Shoe Assembly with Clamp & Bolts (1 set consist 2 Nos.)	9GDS10/ 9GDS11	5840	9GDA10/ 9GDA11	5830	9GDB10/ 9GDB11	7230	9GDC10/ 9GDC11	11230
 Shoe Lining without Bolts (1 set consist 2 Nos.)	9GDS12/ 9GDS13	1960	9GDA12/ 9GDA13	2051	9GDB12/ 9GDB13	2580	9GDC12/ 9GDC13	3741
 Shoe Lining with Bolts (1 set consist 2 Nos.)	9GDS23/ 9GDS26	2670	9GDA23/ 9GDA26	2962	9GDB23/ 9GDB26	3741	9GDC23/ 9GDC26	5360
 Dust Cover (made of jeans cloth & painted with fire reterdent al. paint).	-	-	9GDA30	3293	9GDB30	3293	9GDC30	3924
 mm Size Cast Steel Drum without Hard Chrome Plaiting	9GDS14	6480	9GDA14	7131	9GDB14	10990	9GDC14	18530
 mm Size Cast Steel Drum without Hard Chrome Plaiting	9GDS14P	8760	9GDA14P	10211	9GDB14P	15750	9GDC14P	26850
 Cast Steel Drum without Hard Chrome Plating*	-	-	9GDA15	7300	9GDB15	11240	9GDC15	19020
 Cast Steel Drum with Hard Chrome Plating*	-	-	9GDA15P	10480	9GDB15P	15920	9GDC15P	27593

* For brakes manufactured upto September 07.

For brakes manufactured after September 07 (pins are different).

Spares & Accessories - DC Brakes

Description	16"/400 mm		19"/500 mm		23"/600 mm		30"/700mm	
	Cat No.	List Price Rs.	Cat No.	List Price Rs.	Cat No.	List Price Rs.	Cat No.	List Price Rs.
 Coil Shunt	9GDD01	68761	9GDE01	95331	9GDF01	152360	9GDG01	339760
 Coil Series for inch for mm	9GDD02 9GDD03	170720	9GDE02 9GDE03	222700	9GDF02 9GDF03	344262	-	-
 Torque Adj. Screw Assembly	9GDD04	5600	9GDE04	7991	9GDF04	12781	9GDG04	26800
 Torque Spring	9GDD05	17275	9GDE05	23910	9GDF05	38280	9GDG05	85010
 Wedge Assembly with Bolt, Spring and Washers	9GDD20/ 9GDD22	2143	9GDE20/ 9GDE22	3220	9GDF20/ 9GDF22	5075	9GDG20/ 9GDG22	11254
 Pin set for Lever & Armature Consisting of a) Pin Lever 2 Nos. b) Pin Armature 2 Nos.	9GDD06* 9GDD06-2#	4561	9GDE06* 9GDE06-2#	4561	9GDF06* 9GDF06-2#	6420	On request	On request
 Collar Set of Lever & Armature Consisting of a) Collar Lever 4 Nos. b) Collar Armature 4 Nos.	9GDD07	3220	9GDE07	3490	9GDF07	4362	On request	On request
 Bush Set for Lever & Armature Consisting of a) Bush Lever 4 Nos. b) Bush Armature 4 Nos.	9GDD08	6420	9GDE08	6933	9GDF08	8820	On request	On request
 Pull Rod Assembly with nuts, spring & washer	9GDD29	6933	9GDE29	9590	9GDF29	12900	9GDG29	33782
 Grease Nipple (1 set consist 8 Nos.)	9GDD09	780	9GDE09	1542	9GDF09	1520	On request	On request
 Shoe Assembly with Clamp & Bolts (1 set consist 2 Nos.)	9GDD10/ 9GDD11	17300	9GDE10/ 9GDE11	23933	9GDF10/ 9GDF11	38280	9GDG10/ 9GDG11	85010
 Shoe Lining without Bolts (1 set consist 2 Nos.)	9GDD12/ 9GDD13	5860	9GDE12/ 9GDE13	9590	9GDF12/ 9GDF13	14205	9GDG12/ 9GDG13	26855
 Shoe Lining with Bolts (1 set consist 2 Nos.)	9GDD23/ 9GDD26	7230	9GDE23/ 9GDE26	11972	9GDF23/ 9GDF26	18610	9GDG23/ 9GDG26	33222
 Dust Cover (made of jeans cloth & painted with fire reterdent al. paint).	9GDD30	4255	9GDE30	5260	9GDF30	5520	-	-
 mm Size Cast Steel Drum without Hard Chrome Plating	9GDD14	23165	9GDE14	37213	9GDF14	52473	-	-
 mm Size Cast Steel Drum without Hard Chrome Plating	9GDD14P	34500	9GDE14P	54360	9GDF14P	80295	-	-
 Cast Steel Drum without Hard Chrome Plating*	9GDD15	23853	9GDE15	38445	9GDF15	53230	-	-
 Cast Steel Drum with Hard Chrome Plating*	9GDD15P	35493	9GDE15P	56265	9GDF15P	83060	9GDG15P	140730

* For brakes manufactured upto September 07.

For brakes manufactured after September 07 (pins are different).

Spares - DC Brakes BCH

Spare Selenium Type Bridge Rectifiers

Rectifier Code / Part No.	Recommended to operate brake at 415V AC		Qty. per set	List Price Rs.
	Individual	Simultaneous		
9GDX01	1x8"/200mm	-	2	6660
9GDX02	1x10"/250mm	2x8"/200mm	2	10400
9GDX03	1x13"/300mm 1x16"/400mm	2x10"/250mm	2	14094
9GDX04	1x19"/500mm	2x13"/300mm 2x16"/400mm	2	18610
9GDX05	1x23"/600mm	2x19"/500mm	2	26555
9GDX06	-	2x23"/600mm	2	53145
9GDX07	1x30"/700 & 800mm	-	2	73693

Spare Resistances

Cat. No.	Ohms	Watts	List Price Rs.
9GDX32	32	200	1222
9GDX42	42	200	
9GDX52	52	200	
9GDX80	80	200	
9GDX112	112	200	

Optional Features - DC Brakes

Brakes Size		Manual Release List Price Rs.	Residual Magnetism Adjustment List Price Rs.	Limit Switch Attachment List Price Rs.
Inch	mm			
8	200	2993	2830	5315
10	250	2993	3340	
13	300	4095	4962	
16	400	4391	7405	
19	500	6780	10170	
23	600	9583	11612	

Note : Add following codes to complete brakes code with optional features.

- MR = For Manual Release
- RM = For Residual Magnetism
- LS = For Limit Switch

- RR = For Manual Release + Residual Magnetism
- RL = Residual Magnetism + Limit Switch
- ML = For Manual Release + Limit Switch
- RS = For Manual Release + Residual Magnetism + Limit Switch
- LSA = Limit Switch with fitting Arrangement

Plugs & Sockets BCH



Metal Clad - Plugs & Sockets Type 'MP' & 'MS'

Rating	Pins	Type	Cat No.	MRP Rs.
20A, 250V	2P + E	Plug	MP20	140
		Socket	MS20	152
30A, 440V	3P + E	Plug	MP30	316
		Socket	MS30	316



- Self Locking design : Extremely safe
- Plug cannot be pulled out in fully engaged position
- Auto closing socket shutter
- Reliable Earthing
- Shrouded Terminals for safety

Plastic Plugs & Socket Type 'PS'

Rating	Pins	Type	Cat No.	MRP Rs.
20A, 250V	3	Plug	PS16AA7	165
		Flush Mounting Socket	PS16BA7	179
		Socket with Wall Mounting Box	PS16DA7	236
20A, 415V	4	Plug	PS16AA1	210
		Flush Mounting Socket	PS16BA1	242
		Socket with Wall Mounting Box	PS16DA1	293
32A, 415V	3	Plug	PS32AA7	395
		Socket	PS32BA7	395
	4	Plug	PS32AA1	413
		Socket	PS32BA1	435
	5	Plug	PS32AA5	451
		Socket	PS32BA5	459

Heavy duty Metal-Control 'SS'



Heavy Duty Metal - Control Plugs & Sockets Type 'SS'

Rating	Pins	Type	Cat No.	MRP Rs.
12A, 415V (Control)	12	Panel Mounting Socket	2499/12	882
		Plug with inclined Handle	299/12B	882

Heavy duty Metal-Power 'SS'



Heavy Duty Metal - Power Plugs & Sockets Type 'SS'

Rating	Pins	Type	Cat No.	MRP Rs.
30A, 415V	3	Panel Mounting Socket	2415B	584
		Plug with inclined Handle	215B	584
30A, 415V	4	Panel Mounting Socket	2413B	607
		Plug with inclined Handle	213B	607
30A, 415V	5	Panel Mounting Socket	2417B	646
		Plug with inclined Handle	217B	646

Note : *Loose Conduit Box Straight (Cat. No. 9J 101) - Rs. 210/- each
 *Spare handle inclined Rs. 95/- each.

Plugs & Sockets BCH

Heavy Duty Metal Plug & Sockets Type 'DS' - 5 Pin (with Integral Switching Device)

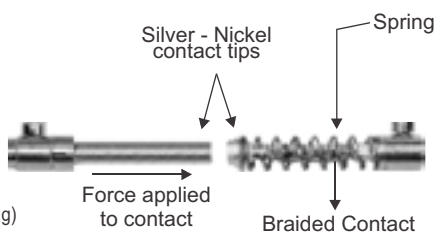
Rating	Pins	Type	Cat No.	MRP Rs.
16A, 415V	5	Plug	DS1A7A1	892
		Socket	DS1B7A1	1107
		Conduit Box	SP91WB	559
		Handle Assembly	SP91PH	123
32A, 415V	5	Plug	DS3A7A1	1568
		Socket	DS3B7A1	1963
		Conduit Box	SP93WB	646
		Handle Assembly	SP93PH	135
63A, 415V	5	Plug	DS6A7A1	2511
		Socket	DS6B7A1	3239
		Conduit Box	SP96WB	1059
		Handle Assembly	SP96PH	195
125A, 415V	5	Plug	DS9A7A1	7354
		Socket	DS9B7A1	10303
		Conduit Box	SP99WB	5160
		Handle Assembly	SP99PH	646

Note : Power Receptacles with or without SFU/SDFU/MCB/MCCB having loop-in / loop-out facility is available on request.



- Range from 16A to 125 A
- 5 Pin configuration (3P+N+E)
- Plug cannot come out in ON condition (Integral Interlocking)

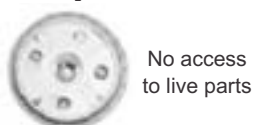
- Spring loaded Butt type contacts
- Self aligning and self wiping



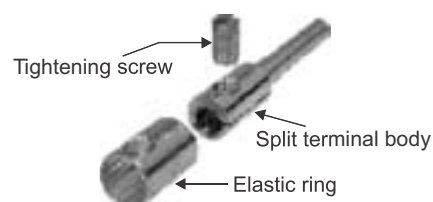
Quick Disconnect



Safety Disk



Vibration proof termination



Plug & Socket Box BCH

Metal Clad - Plug & Socket Box Type 'MPSEU'



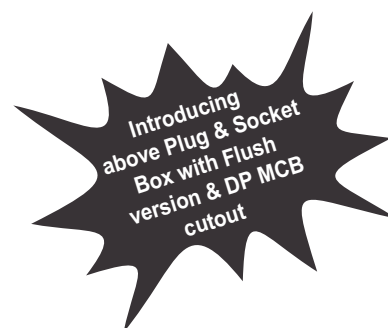
Rating	Pins	Mounting	Type	Cat No.	MRP Rs.
20A, 250V	2P + E	Universal	Plug & Socket Box - SP-MCB Cutout	MPSEU201	790
20A, 250V	2P + E	Universal	Plug & Socket Box - DP-MCB Cutout	MPSEU202	790
30A, 440V	3P + E	Universal	Plug & Socket Box - TPN-MCB Cutout	MPSEU301	2020



20A



30A



Plastic - Plug & Socket Box Type 'PSEU / PSEF'



Rating	Pins	Mounting	Type	Cat No.	MRP Rs.
20A, 250V	3	Universal	Plug & Socket Box with SP MCB Cutout	PSEU201	895
			Plug & Socket Box with DP-MCB Cutout	PSEU202	895
		Flush	Plug & Socket Box with SP MCB Cutout	PSEF201	895
			Plug & Socket Box with DP-MCB Cutout	PSEF202	895
32A, 415V	4 5	Universal	Plug & Socket Box with 4P MCB Cutout	PSEU324	2122
				PSEU325	2177
	4 5	Flush	Plug & Socket Box with 4P MCB Cutout	PSEF324	2122
				PSEF325	2177

Heavy Duty Metal - Plug & Socket Box Type 'SSEU'

Rating	Pins	Mounting	Type	Cat No.	MRP Rs.
30A, 415V	3	Universal	Plug & Socket Box with DP MCB Cutout	SSEU303	2402
	4	Universal	Plug & Socket Box with 4P MCB Cutout	SSEU304	2460
	5			SSEU305	2522



Stainless Steel Cover Plug & Socket Box Type 'PSEU-SSC/SSEU-SSC'

Rating	Pins	Mounting	Type	Cat No.	MRP Rs.
20A, 250V 32A, 415V	3	Universal	P&S Box with 'PS' P&S and SP MCB Cutout	PSEU201-SSC	1185
	5		P&S Box with 'PS' P&S and 4P MCB Cutout	PSEU325-SSC	2486
30A, 415V	3	Universal	Plug & Socket Box with DP MCB Cutout	SSEU303-SSC	2769
	4	Universal	Plug & Socket Box with 4P MCB Cutout	SSEU304-SSC	2829
	5			SSEU305-SSC	2885

Rewirable Fuse Switch BCH

Rewirable Fuse Switch

Voltage V	Rating A	Poles	Cat No.	MRP Rs.
240	16	SPN	RWDD016SPN240WW	383
	32	SPN	RWDD032SPN240WW	1010
	63	SPN	RWFB063SPN415WW	2440
240	16	DP	RWDD0160DP240WW	400
	32	DP	RWDD032ODP240WW	1090
	63	DP	RWFB0630DP415WW	2803
415	16	TPN	RWDD016TPN415WW	1144
	32	TPN	RWDD032TPN415WW	1590
	63	TPN	RWDD063TPN415WW	3303
	100	TPN	RWFB100TPN415WW	6150
415	16	TP	RWDD0160TP415WW	1103
	32	TP	RWDD0320TP415WW	1560
	63	TP	RWDD0630TP415WW	3272
	100	TP	RWFB100TP415WW	6110

- AC 23 A Duty as per IS 13947, Part-III
- Door Interlock that does not allow the switch to be turned ON if the door is open
Available in Deep Drawn Boxes and Fabricated Boxes
- Rewirable Fuse bases mounted on high quality Hylem sheet to achieve better insulation
- Quick make-Quick break mechanism Suitable for Industrial and Commercial operation where heavy ON-LOAD switching duties are needed
- Most ideal and handy for effective control of repeated switching operation of air conditioners, refrigerators, geysers and other household electrical appliances
- 180° Door opening facilitates ease of maintenance

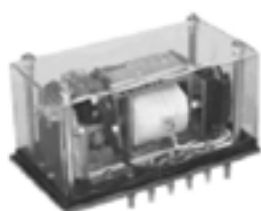


Pneumatic Timers BCH

Pneumatic Timer



Timer for Railway Application



- 30 sec / 60 sec/180 sec
- AC and DC Supply
- 1 NO+1NC / 2 NO+2NC Contact Blocks
- Completely enclosed timing head ensures excellent timings in adverse environmental conditions
- Encapsulated coil for better resistance against moisture and corrosion
- Completely maintainable i.e Coil , Contact blocks and Timing head can be replaced
- Special timer for Railway application

Site convertible
On/Off delay

Pneumatic Timers Time Delay Relay-Electro Pneumatic

Type	Time (Secs.)	Contact Configuration		Cat No.	MRP Rs.	
		Timed Block	Instantaneous Block		AC	DC
PN	30	1NO + 1NC		KRTPN10 ■ 0	2870	4300
	60	1NO + 1NC	-	KRTPN10 ■ 1	2970	4550
	180	1NO + 1NC	-	KRTPN10 ■ 3	3360	4960
	30	2NO + 2NC	-	KRTPN20 ■ 0	3220	4610
	60	2NO + 2NC	-	KRTPN20 ■ 1	3300	4670
	180	2NO + 2NC	-	KRTPN20 ■ 3	3540	5010
PNI	30	1NO + 1NC	1NO + 1NC	KRTPN11 ■ 0	3500	5170
	60	1NO + 1NC	1NO + 1NC	KRTPN11 ■ 1	3980	5480
	180	1NO + 1NC	1NO + 1NC	KRTPN11 ■ 3	4350	5550
	30	2NO + 2NC	2NO + 2NC	KRTPN22 ■ 0	4390	5730
	60	2NO + 2NC	2NO + 2NC	KRTPN22 ■ 1	4440	6030
	180	2NO + 2NC	2NO + 2NC	KRTPN22 ■ 3	4770	6370
		On-Delay Block	Off-Delay Block			
PCN	30	1NO + 1NC	1NO + 1NC	KRTPCN11 ■ 0	4750	6360
	60	1NO + 1NC	1NO + 1NC	KRTPCN11 ■ 1	4990	6410
	180	1NO + 1NC	1NO + 1NC	KRTPCN11 ■ 3	5670	7090
	30	2NO + 2NC	2NO + 2NC	KRTPCN22 ■ 0	5340	6980
	60	2NO + 2NC	2NO + 2NC	KRTPCN22 ■ 1	5590	7070
	180	2NO + 2NC	2NO + 2NC	KRTPCN22 ■ 3	6310	7710

PN, PNI Time Delay Relay will be supplied only as on-delay

- To complete Cat. No. Suffix voltage code from Table

Timer for Railway Application

Type	Time (Secs.)	Contact Configuration		Cat No.	MRP Rs.	
		Timed Block	Instantaneous Block		AC	DC
PN	120	2NO + 2NC	-	KRTPN20A-2R	3450	-
	150	2NO + 2NC	-	KRTPN20A-3R	3450	-

△ 110V AC coil voltage, without knob

Accessories for Time Delay Relay

Description	Cat.No.	MRP Rs.	Lot Size
Contact Block			
1NO+1NC Timed	SP20S3+	641	1
2NO+2NC Timed	SP20S4+	851	
1NO+1NC Inst.	SP20S5+	641	
2NO+2NC Inst.	SP20S6+	851	
Magnet Coil			
AC-PN Relays	SP20MC ■	802	1
AC-PNI & PCN Relays	SP20MC1 ■	802	
DC Relays	SP20MC2 ■	2629	1
Return Spring*			
(PNI & PCN)	SP20RS	141	1
Coil Clip*	SP20CC	231	
Magnet frame	SP20 MA/MA1	1334	1
assembly without coil			
Knob Assembly	SP20KA	22	10

+ These are supplied with plastic cover

* For DC Timers only

- To complete suffix voltage code refer to the table

- High Repeat Accuracy
- Operating Temperature - 40° to +65°
- Mechanical and Electrical Life - 10 million operations

Voltage Sux Code

Coil Voltage	24	110	220	240	415
AC Suffix M Code	U	A	B	K	M
DC Suffix - Code	U1	A1	B1	K1	-

Motor StartersBCH

Auto Start Direct on line Starter



- Automatically starts the Motor when the power comes back
- Upto 24 A relay rating
- Time delay before restart to settle power supply fluctuations
- Monitors power supply condition before restarting
- Protection against single phasing, phase imbalance & phase reversal

Manual Star Delta Starter

- Contactor based superior design with 25 A heavy duty switch
- Momentary Star position ensures perfect transition
- Ideal for Oil Mills, Flour Mills and agro industries



Mini Manual Starters



- Range : 3 - Ph : upto to 10 HP
- : 1 - Ph : upto 4 HP
- Proven time tested product
- Flush and base mounting

Mini Manual with UVT coil

- Automatic Version of Mini Manual Starter
- Prevents motor from restarting when power comes back
- Trips the starter automatically in low voltage conditions



Motor Starters BCH

Citation Motor Starter



- Range upto 30 HP
- Encapsulated and hermetically sealed coil
: Moisture proof and shock resistant
- Easy inspection and maintenance
- 7 tank processed, Powder coated enclosure
for excellent finish and durability



Citation DOL Motor Starters (with 380/415 V coil)

HP / KW	Overload Relay Range (A)	Cat. No. SS ENCLOSURE	MRP Rs.	Cat. No. OPEN EXECUTION	MRP Rs.	Lot Size
0.5 / 0.37	0.72 - 1.14	NADLEN	2450	NADLENI	2350	1
0.75 / 0.55	1.07 - 1.70	NAELEN		NAELENI		
1 / 0.75	1.58 - 2.50	NAFLEN		NAFLENI		
2 / 1.5	2.4 - 3.8	NAGLEN		NAGLENI		
3 / 2.2	3.8 - 6.0	NAHLEN		NAHLENI		
5 / 3.7	6.0 - 9.3	NAJLEN		NAJLENI		
7.5 / 5.5	8.9 - 13.5	NAKLEN	2580	NAKLENI	2480	
10 / 7.5	13.2 - 20.0	NALLEN		NALLENI		

For 220 / 240 V coil replace suffix 'N' with 'H' in the Cat. Code

Direct on line (Shakti) Starter in SS Enclosure with 190-400 V coil voltage



**Easy Inspection
Easy maintenance**

Overload Relay Range (A)	Shakti	MRP Rs.	Shakti	MRP Rs.	Back Up Fuse (A)	Lot Size
2.4 - 3.8	SAGZ	1950	SAWPGZ	1790	16	1
3.8 - 6.0	SAHZ		SAWPHZ		20	
6.0 - 9.3	SAJZ		SAWPJZ		25	
8.9 - 13.5	SAKZ		SAWPKZ		36	
13.2 - 20.0	SALZ	2085	SAWPLZ	1905	50	
17.4 - 24.0	SAMZ	2220	SAWPMZ	2010	63	

For 380 / 415 V replace 'Z' with 'N' and for 220 / 240 V replace 'Z' with 'H' in the Cat. Code

Direct on line (Shakti) Starter in Open Execution with 190-400 V coil voltage



Heavy duty, encapsulated Coil



Overload Relay Range (A)	Shakti	MRP Rs.	Shakti	MRP Rs.	Back Up Fuse (A)	Lot Size
2.4 - 3.8	SAGZI	1850	SAWPGZI	1690	16	1
3.8 - 6.0	SAHZI		SAWPHZI		20	
6.0 - 9.3	SAJZI		SAWPJZI		25	
8.9 - 13.5	SAKZI		SAWPKZI		36	
13.2 - 20.0	SALZI	1985	SAWPLZI	1805	50	
17.4 - 24.0	SAMZI	2120	SAWPMZI	1910	63	

For 380 / 415 V replace 'Z' with 'N' and for 220 / 240 V replace 'Z' with 'H' in the Cat. Code

Motor Starters BCH

Citation DOL Motor Starters in SS Enclosure (with 380/415 V coil) With NHD Contactor

Cat. No.	Overload Relay Range (A)	HP / KW	MRP Rs.
NAMLEN	17.4 - 24.0	15 / 11	4035
NANLEN	22.0 - 30.0	20 / 15	7100
NACT1LEN	24.0 - 39.0	25 / 18.5	10900

With Citation D Contactor

NACT2LEDM	37.6 - 60.0	30 / 22	11000
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Auto Start Direct on Line Starter in SS Enclosure with 230-400 V coil

Standard Model Cat. No.	Premium Model Cat. No.	Overload Relay Range (A)	Back UP fuse (A)	MRP Rs. Standard Model	MRP Rs. Premium Model	Lot Size
ASAGZ	ASXGZ	2.4-3.8	16	2495	2830	1
ASAHZ	ASXHZ	3.8-6.0	20			
ASAJZ	ASXJZ	6.0-9.3	25			
ASAKZ	ASXKZ	8.9-13.5	36			
ASALZ	ASXLZ	13.2-20	50	2610	2965	
ASAMZ	ASXMZ	17.4-24	63	2775	3145	

Mini Manual Motor Starter upto 4HP-1 Phase (Surface Mtg.)

Cat. No.	Overload Relay Range (A)	1 Phase/240V Recommended HP	MRP Rs.
AMLE-10-SP	0.23 - 0.47	-	800
AMLE-20-SP	0.46 - 0.80	-	
AMLE-30-SP	0.85 - 1.55	1 / 8	
AMLE-40-SP	1.60 - 3.20	1 / 6	
AMLE-50-SP	3.50 - 6.50	0.5 / 0.75	
AMLE-60-SP	6.80 - 11.7	1 / 2	
AMLE-70-SP	11.0 - 20.0	2 / 4	

For Flush mounting replace 'E' by 'C' and reduce price by Rs. 50

Mini Manual Motor Starter (20A) upto 4HP-1 Phase (Surface Mtg.) with UV coil

Cat. No.	Overload Relay Range (A)	1 Phase/240V Recommended HP	MRP Rs.
AMLEH-10-SP	0.23 - 0.47	-	1060
AMLEH-20-SP	0.46 - 0.80	-	
AMLEH-30-SP	0.85 - 1.55	1 / 8	
AMLEH-40-SP	1.60 - 3.20	1 / 6	
AMLEH-50-SP	3.50 - 6.50	0.5 / 0.75	
AMLEH-60-SP	6.80 - 11.7	1 / 2	
AMLEH-70-SP	11.0 - 20.0	2 / 4	

Mini Manual Motor Starter upto 10HP-3 Phase (Surface Mtg.)

Cat. No.	Overload Relay Range (A)	3 Phase/415V Recommended HP	MRP Rs.
AMLE-10	0.23 - 0.47	-	1095
AMLE-20	0.46 - 0.80	-	
AMLE-30	0.85 - 1.55	0.50 / 0.75	
AMLE-40	1.60 - 3.20	1.00 / 1.50	
AMLE-50	3.50 - 6.50	3.00	
AMLE-60	6.80 - 11.7	5.00	
AMLE-70	11.0 - 20.0	10.00	

For Flush mounting replace 'E' by 'C' and reduce price by Rs. 50

Mini Manual Motor Starter (20A) upto 10HP-3 Phase (Surface Mtg.) with UV coil

Cat. No.	Overload Relay Range (A)	3 Phase/415V Recommended HP	MRP Rs.
AMLEN-10	0.23 - 0.47	-	1230
AMLEN-20	0.46 - 0.80	-	
AMLEN-30	0.85 - 1.55	0.50 / 0.75	
AMLEN-40	1.60 - 3.20	1.00 / 1.50	
AMLEN-50	3.50 - 6.50	3.00	
AMLEN-60	6.80 - 11.7	5.00	
AMLEN-70	11.0 - 20.0	10.00	

Motor Starters BCH

Citation Star Delta Starter



- Range upto 250 HP
- Semi Automatic & Fully Automatic Version
- High accuracy pneumatic timer in Fully Automatic Version

Fully Automatic Citation Star Delta Starter in Sheet Steel Enclosure with NHD Contactor & Pneumatic Timers

Cat. No.	Overload Relay Range (A)	HP / KW	MRP Rs.
NASAGLEN	2.4 - 3.8	3 / 2.2	9045
NASAHLEN	3.8 - 6.0	5 / 3.7	
NASAJLEN	6.0 - 9.3	10 / 7.5	
NASAKLEN	8.9 - 13.5	15 / 11	
NASAKLEN / LOR	13.0 - 20.0	15 / 11	9175
NASALLEN	13.2 - 20.0	20 / 15	9950
NASAMLEN	17.4 - 24.0	25 / 18.5	10185
NASANLEN	22.0 - 30.0	35 / 26	18400
NASACT1LEN	24.4 - 39.0	40 / 30	22000

Note : For other coil voltages contact our sales office.

Fully Automatic Citation Star Delta Starter in Sheet Steel Enclosure with Citation M Contactor & Pneumatic Timers

Cat. No.	Overload Relay Range (A)	HP / KW	MRP Rs.
NASACT1LEDM	24.0 - 39.0	40 / 30	25765
NASACT2LEDM	37.6 - 60.0	50 / 37	26600
NASACT2LEEM	37.6 - 60.0	75 / 55	46250
NASACT3LEEM	56.4 - 90.0	85 / 65	49430
NASACT3LEC5M	56.4 - 90.0	100 / 75	64150
NASACT4LEC5M	84.6 - 135.0	135 / 100	65205
NASACT4LENM	84.6 - 135.0	150 / 110	68360
NASACT5LEC6M	131.6 - 210.0	250 / 185	123200
NASACT6LEC6M	188.0 - 300.0	375 / 280	139100

Note : For other coil voltages contact our sales office.

Fully Automatic Shakti Star Delta Starter in SS Enclosure with 260-400 V coil & Electronic Timer

Cat. No.	Overload Relay Range (A)	HP/KW	MRP Rs.
SASAGLEG	2.4 - 3.8	3/ 2.2	6675
SASAHLEG	3.8 - 6.0	5 / 3.7	
SASAJLEG	6.0 - 9.3	10 / 7.5	
SASAKLEG	8.9 - 13.5	15 / 11	

For 380 / 415V Coil Voltage replace Suffix 'G' by 'N'

Shakti Star Delta Starter

- Range upto 15 HP
- Wide Band coil (260 to 400 V rated)
- Semi Automatic & Fully Automatic Version
- Electronic timer in Fully Auto version

Semi Automatic Citation Star Delta Starter in SS Enclosure with NHD Contactor

Cat. No.	Overload Relay Range (A)	HP / KW	MRP Rs.
NASSGLEN	2.4 - 3.8	3 / 2.2	6050
NASSHLEN	3.8 - 6.0	5 / 3.7	
NASSJLEN	6.0 - 9.3	10 / 7.5	
NASSKLEN	8.9 - 13.5	15 / 11	
NASSKLEN / LOR	13.0- 20.0	15 / 11	6180
NASSLLEN	13.2 - 20.0	20 / 15	9150
NASSMLLEN	17.4 - 24.0	25 / 18.5	9250
NASSNLEN	22.0 - 30.0	35 / 26	16830

Note : For other coil voltages contact our sales office.

Semi Automatic Shakti Star Delta Starter in SS Enclosure with 260-400 V coil

Cat. No.	Overload Relay Range (A)	HP/KW	MRP Rs.
SASSGLEG	2.4 - 3.8	3/ 2.2	5680
SASSHLEG	3.8 - 6.0	5 / 3.7	
SASSJLEG	6.0 - 9.3	10 / 7.5	
SASSKLEG	8.9 - 13.5	15 / 11	

For 380 / 415V Coil Voltage replace Suffix 'G' by 'N'

* Available till stock lasts.

Motor Starters BCH

DOL Reversing Starter in SS Enclosure with 380/415V Coil

Cat. No.	Overload Relay Range (A)	HP / KW	MRP Rs.	Lot Size
NARGLEN	2.40 - 3.80	2.00 / 1.50	7090	1
NARHLEN	3.80 - 6.00	3.00 / 2.20		
NARJLEN	6.00 - 9.30	5.00 / 3.70		
NARKLEN	8.90 - 13.50	7.50 / 5.50		
NARLLEN	13.20 - 20.0	10.0 / 7.50	8650	
NARMLLEN	17.40 - 24.0	15.0 / 11.0	9140	
NARNLEN	22.0 - 30.0	20.0 / 15.0	14370	

Spares for Starter and Submersible Pump Starter

Spares - Shakti Starters

Description	Cat. No.	MRP Rs.
Contact Kit	SHA	645
Coil 190-400V	SHZ	242
Contact Carrier	SHCC	145
Extended button Assembly	SHPB	175
Contact for DOL	SHCO	1425
Contact for Star Delta	SHACO	1425
Autounit (for ASX and OISDY)	CPNYAU*-5S	940
Autounit (for ASX and OISDY)	CPNYAU*-5M	940

Spares for 3 Phase Submersible Pump Starter

Description	Cat. No.	MRP Rs.
Autounit (2 position)	CPAU*-5S or 5M	885
Autounit (3 position SPS)	CPYAU*-5S or 5M	885
Ammeter 25A	CPAM25	355
Ammeter 50A	CPAM50	355
Voltmeter 500V	CPVM500	355
Electronic Timer	SPSATG	1755
Terminal Block 15A 2 way	CPTB215	32
Terminal Block 60A 3 way	CPTB360	101
Terminal Block 60A 6 way	CPTB660	177
Mounting Bracket Set	CPBM	76

Spares for - Citation M Starters

Description	Cat. No.	MRP Rs.
Start & stop reset button unit assembly	SP100PB3	207
Start actuator Block for DOL	SP100CB	175
Start actuator Block for SD	SP100CBS	175
Terminal Block for Star/Delta Starters	SP100TB	160

Spares for 1 Phase Submersible Pump Starter

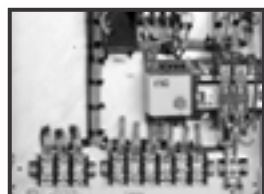
Description	Cat. No.	Unit Price Rs.
ON Indicating Lamp	ILR- B	53
Ammeter 10A	SPAM-10	355
Ammeter 15A	SPAM-15	355
Ammeter 25A	SPAM-25	365
Voltmeter 300V	SPVM-300	365
Terminal Block 30A 5 way-1	CPTB530	50
Terminal Block 30A 5 way-2	CPTB530H	96
Terminal Block 30A 3 way	CPTB330	43

Submersible Pump Starters



On/Trip Indicators

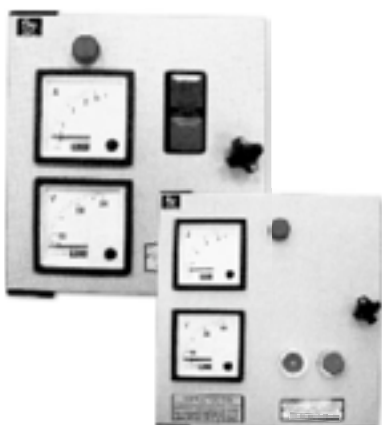
Isolated Terminal blocks for better termination



Properly laid down wires, bunched with cable ties Ferrules for ease of identification

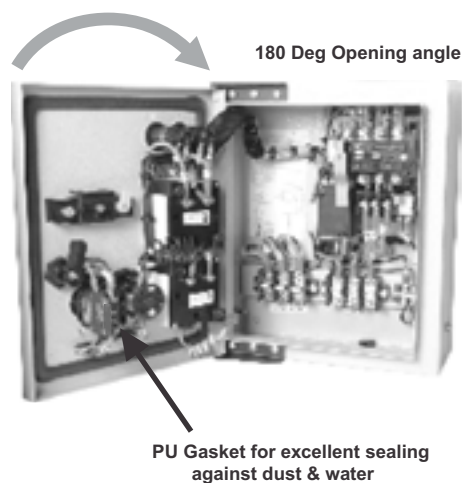
Phase indicators (For std & Premium models)

Weather proof Auto manual Switch



Three Phase

- Direct on line : upto 24 A relay rating
- Star Delta : upto 39 A relay rating
- Protections :
 - Phase failure
 - Phase imbalance
 - Phase reversal
- Short Circuit Protection Thru MCB : In case of Premium models
- Ammeter and Voltmeter
- On/Off and Trip indications
- Powder coated enclosure with PU gasket ensuring excellent finish and reliability
- Provision for connecting Dry run preventor



Single Phase

With Mini DOL (up to 11.0 - 20. A Relay)

- Economy Model (Without Ammeter)
- Standard Model (With Ammeter)
- Premium Model (With Ammeter & Voltmeter)

With 2 Pole Contactor + 2 Pole Relay (up to 17.4 - 24.0 A Relay)

- Economy Model (With Ammeter)
- Standard Model (With Ammeter & Voltmeter)

Motor Starters BCH

Citation Submersible Pump Starter with Auto Unit

		Cat. No.	Range	MRP Rs.
Citation - A Submersible DOL	Economy without Short Circuit Protection	CPEANAJ*	6.0 - 9.3	5230
		CPEANAK*	8.9 - 13.5	5230
		CPEANAL*	13.2 - 20.0	5430
		CPEANAMN	17.4 - 24.0	5650
	Premium with Short Circuit Protection	CPPANAJ*	6.0 - 9.3	7325
		CPPANAK*	8.9 - 13.5	7325
		CPPANAL*	13.2 - 20.0	7635
		CPPANAMN	17.4 - 24.0	7990
Citation - A Submersible Star Delta	Economy with Short Circuit Protection	CPSDEAJ#	6.0 - 9.3	10230
		CPSDEAK#	8.9 - 13.5	10230
		CPSDEALN	13.2 - 20	10530
		CPSDEAMN	17.4 - 24	10780
		CPSDEANN	22 - 30A	19950
		CPSDEACT1N	24.4 - 39A	19970
	Premium with Short Circuit Protection	CPSDPAJ#	6.0 - 9.3	12100
		CPSDPAK#	8.9 - 13.5	12100
		CPSDPALN	13.2 - 20.0	12600
		CPSDPAMN	17.4 - 24.0	12950

* Coil Voltage N - 380/415V Z - 230-400V # - Coil Voltage N - 380/415V G - 260-400V

Citation Starter without Meters & Indicators

		Cat. No.	Range	MRP Rs.
Economy Version (without Short Circuit Protection)	DOL	CPEANJ*	6 - 9.3A	4930
		CPEANK*	8.9 - 13.5A	4930
		CPEANL*	13.2 - 20A	5130
		CPEANMN	17.4 - 24A	5350
	Star Delta	CPSDEJ#	6 - 9.3A	9930
		CPSDEK#	8.9 - 13.5A	9930
		CPSDELN	13.2 - 20.0A	10230
		CPSDEMN	17.4 - 24.0A	10480
		CPSDENN	22 - 30A	19650
		CPSDECT1N	24.4 - 39A	19670

* Coil Voltage N - 380/415V Z - 230-400V # - Coil Voltage N - 380/415V G - 260-400V

Shakti DOL Submersible Pump Starter

		Cat. No.	Range	MRP Rs.
Economy Version (without Short Circuit Protection)	Auto / Bypass	CPEASAJZ	6 - 9.3A	4710
		CPEASAKZ	8.9 - 13.5A	4710
		CPEASALZ	13.2 - 20A	5110
		CPEASAMZ	17.4 - 24A	5330
	3 Position Selection Manual - Manual SPP - Auto	CPEYSAJZ	6 - 9.3A	4940
		CPEYSAKZ	8.9 - 13.5A	4940
		CPEYSALZ	13.2 - 20A	5270
		CPEYSAMZ	17.4 - 24A	5570

Motor Starters BCH

Citation Submersible Pump Starter with 3 Position Selection - DOL & Star Delta



		Cat. No.	Range	MRP Rs.
Citation - A Submersible Pump Starter With 3 Position Selection (Manual- Manual SPP- Auto)	Premium DOL	CPPYNAJ*	6 - 9.3A	7465
		CPPYNAK*	8.9 - 13.5A	7465
		CPPYNAL*	13.2 - 20A	7775
		CPPYNAMN	17.4 - 24A	8130
	Premium Star Delta	CPSDPYJ#	6 - 9.3A	12250
		CPSDPYK#	8.9 - 13.5A	12250
		CPSDPYLN	13.2 - 20A	12750
		CPSDPYMN	17.4 - 24A	13100
Citation - A Submersible Pump Starter With 3 Position Selection (Manual- Manual SPP- Auto)	Economy DOL	CPEYNAJ*	6 - 9.3A	5370
		CPEYNAK*	8.9 - 13.5A	5370
		CPEYNAL*	13.2 - 20A	5570
		CPEYNAMN	17.4 - 24A	5790
	Economy Star Delta	CPSDEYJ#	6 - 9.3A	10380
		CPSDEYK#	8.9 - 13.5A	10380
		CPSDEYLN	13.2 - 20A	10680
		CPSDEYMN	17.4 - 24A	10930
		CPSDEYNN	22 - 30A	20100
		CPSDEYCT1N	24.4 - 39A	20120

* Coil Voltage N - 380/415V Z - 230-400V # - Coil Voltage N - 380/415V G - 260-400V

1-Phase SPS With Mini Manual Dol Starter (With Ammeter & Voltmeter)

Cat.	HP	Relay Range (Amp.)	Run Capacitor (mfd)	MRP Rs.
CPPM50-25-SP	0.5 HP 0.75 HP	3.5 - 6.5	25	2130
CPPM60-36-SP	1 HP	6.8 - 11.7	36	2150
CPPM60-50-SP	1.5 HP	6.8 - 11.7	50	2270
CPPM70-50-SP	2 HP	11 - 20.0	50	2310

*Available with 'NO VOLT COIL' version also. **For prices contact our nearest sales office.**

1-Phase SPS With 2 Pole Contactor + Relay (With Ammeter)

Cat.	HP	Relay Range (Amp.)	Run Capacitor (mfd)	Start Capacitor (mfd)	MRP Rs.
CPNEHBW-SP	0.5 HP 0.75 HP	3.8 - 6.0	25	80/100	2905
CPNEJBW-SP	1 HP	6.0 - 9.3	36	100/120	3030
CPNEKBW-SP	1.5 HP	8.9 - 13.5	50	120/150	3220
CPNELBW-SP	2 HP	13.2 - 20.0	36+36	150/200	3500
CPNEMBW-SP	3 HP	17.4 - 24.0	50+50	200/250	4100
CPNEPBW-SP	5 HP	23.0 - 32A	50+50+50	200/250	6190

1-Phase SPS With 2 Pole Contactor + Relay (With Ammeter + Voltmeter)

Cat.	HP	Relay Range (Amp.)	Run Capacitor (mfd)	Start Capacitor (mfd)	MRP Rs.
CPNSHBW-SP	0.5 HP 0.75 HP	3.8 - 6.0	25	80/100	3040
CPNSJBW-SP	1 HP	6.0 - 9.3	36	100/120	3220
CPNSKBW-SP	1.5 HP	8.9 - 13.5	50	120/150	3410
CPNSLBW-SP	2 HP	13.2 - 20.0	36+36	150/200	3790
CPNSMBW-SP	3 HP	17.4 - 24.0	50+50	200/250	4370
CPNSPBW-SP	5 HP	23.0 - 32A	50+50+50	200/250	6490

Oil Immersed Starters BCH

Direct on Line

Cat No.	Relay Range	HRC Fuse Rating (EE Type) (max)	MRP Rs.
OISWPGN OISWPGT	2.4-3.8A	16A	1950
OISWPHN OISWPHT	3.8-6.0A	20A	1950
OISWP JN OISWP JT	6.0-9.3A	25A	1950
OISWPKN OISWPKT	8.9-13.5A	36A	1950
OISWPLN OISWPLT	13.2-20A	50A	1950
OISWPMN OISWPMT	17.4-24A	63A	2160

Note : The last alphabet in the Cat No. Indicates coil voltage : N-380/415 V ; T-220/400V

Star Delta - Semi Automatic

Cat No.	Relay Range	HRC Fuse Rating (EE Type) (max)	MRP Rs.
OISDSWPJN OISDSWPJT	6.0-9.3A	20A	5300
OISDSWPKN OISDSWPKT	8.9-13.5A	32A	5300
OISDSWPLN OISDSWPLT	13.2-20A	35A	5300
OISDSWPMY	17.4-24A	50A	5690

Fully Automatic Star Delta Starter

Cat No.	Relay Range	HRC Fuse Rating (EE Type) (max)	MRP Rs.
OISDAWPJ*	6 - 9.3A	20A	5910
OISDAWPK*	8.9 - 13.5A	32A	5910
OISDAWPL*	13.2 - 20A	35A	5910
OISDAWPM*	17.4 - 24A	56A	6300
OISDAWPP*	23 - 32A	63A	6380

Fully Automatic Star Delta Starter

with SPP & 3 positions Auto Manual Switch

Cat No.	Relay Range	HRC Fuse Rating (EE Type) (max)	MRP Rs.
OISDYWPJ*	6 - 9.3A	20A	6910
OISDYWPK*	8.9 - 13.5A	32A	6910
OISDYWPL*	13.2 - 20A	35A	6910
OISDYWPM*	17.4 - 24A	56A	7330
OISDYWPP*	23 - 32A	63A	7390

Replace '*' with 'N' for 380-415VAC coil & with 'Y' for 240-400VAC coil

Spares for Oil Starter

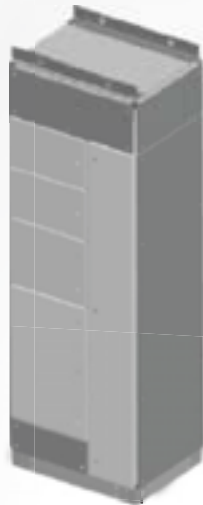
Oil Immersed Starters



Description	Cat No.	MRP Rs.
Contact Kit without coil for DOL - Power & Auxiliary Contacts (set of fix contact, moving contact, hex screw, spring washer, spring clip, spring cap, contact spring)	OCK	300
Power Kit without coil set for all 3 contactor of Star Delta Starter (fix contact, moving contact, hex screw, spring washer, spring clip, spring cap, contact spring)	Upto L Relay - OCKSD20 M, P Relay - OCKSD30	750 855
Auxiliary Contact Kit set for Star Delta Starter	Upto L Relay - OCKSDAUX20 M, P Relay - OCKSDAUX30	161 161
Coil - Main & Delta Contactor (220-400V) (240-400V) (380/415V)	OCT OCY OCN	321
Coil - Star Contactor (220-400V) (240-400V) (380/415V)	OCT - STAR OCY - STAR OCN - STAR	214
Overload Relay for Oil Starter - Pls refer along with all other Overload Relay Page 25		

Enclosure Systems

- **Bhartia Boxes IP: 55, IP: 66**
- **'BCH-SS' (Stainless Steel) Boxes**
- **Terminal Boxes IP:55 & IP:66**
- **Techno - Modular Enclosures**
- **IT Racks - 19" and ETSI Racks**
- **MCC & PCC Enclosures**
- **Control desks**



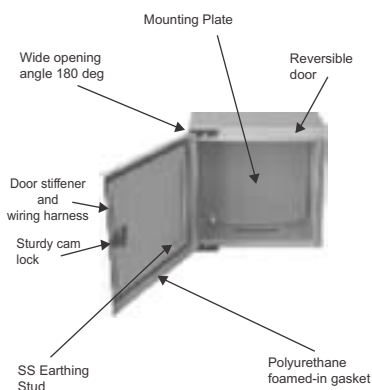
Enclosure Systems BCH

Bhartia Boxes



- 51 Different Versions
- Single/Double door versions
- Min. Size : 200 X 200 X 150
- Max Size : 1000 X 1200 X 300
- IP 55/IP66

Double door version



Type	Size (WxHxD) mm	IP-55 Range			IP-66 Range	
		MOQ Nos.	Cat. No.	List Price Rs.	Cat. No.	List Price Rs.
SINGLE DOOR BOX	200x200x150	1	BIL-50000	1620	BIL-60000	1690
SINGLE DOOR BOX	200x300x150	1	BIL-50010	1970	BIL-60010	2080
SINGLE DOOR BOX	250x300x150	1	BIL-50020	2040	BIL-60020	2185
SINGLE DOOR BOX	300x300x150	1	BIL-50030	2150	BIL-60030	2235
SINGLE DOOR BOX	300x300x200	1	BIL-50050	2390	BIL-60050	2590
SINGLE DOOR BOX	300x400x150	1	BIL-50060	2430	BIL-60060	2700
SINGLE DOOR BOX	300x400x200	1	BIL-50080	2800	BIL-60080	2910
SINGLE DOOR BOX	400x300x150	1	BIL-50090	2460	BIL-60090	2730
SINGLE DOOR BOX	400x300x200	1	BIL-50110	2725	BIL-60110	2860
SINGLE DOOR BOX	400x400x150	1	BIL-50120	2660	BIL-60120	2970
SINGLE DOOR BOX	400x400x200	1	BIL-50140	2900	BIL-60140	3215
SINGLE DOOR BOX	400x500x150	1	BIL-50150	3100	BIL-60150	3620
SINGLE DOOR BOX	400x500x200	1	BIL-50170	3250	BIL-60170	3625
SINGLE DOOR BOX	400x600x200	1	BIL-50190	3875	BIL-60190	3925
SINGLE DOOR BOX	500x600x200	1	BIL-50210	4400	BIL-60210	4500
SINGLE DOOR BOX	500x700x200	1	BIL-50220	5000		
SINGLE DOOR BOX	500x700x300	1	BIL-50230	5880		
SINGLE DOOR BOX	600x400x200	1	BIL-50240	4015	BIL-60240	4380
SINGLE DOOR BOX	600x400x300	1	BIL-50250	5240		
SINGLE DOOR BOX	600x500x200	1	BIL-50260	4780	BIL-60260	5235
SINGLE DOOR BOX	600x600x200	1	BIL-50270	4980		
SINGLE DOOR BOX	600x600x300	1	BIL-50280	6040		
SINGLE DOOR BOX	600x700x200	1	BIL-50290	6145		
SINGLE DOOR BOX	600x800x200	1	BIL-50300	6045		
SINGLE DOOR BOX	600x800x300	1	BIL-50320	7055		
SINGLE DOOR BOX	600x1000x200	1	BIL-50330	7335		
SINGLE DOOR BOX	600x1000x300	1	BIL-50340	8450		
SINGLE DOOR BOX	800x800x300	1	BIL-50310	8495		
SINGLE DOOR BOX	800x1000x200	1	BIL-50350	9035		
SINGLE DOOR BOX	800x1000x250	1	BIL-50360	9195		
SINGLE DOOR BOX	800x1000 x300	1	BIL-50390	9750		
SINGLE DOOR BOX	800x1200 x300	1	BIL-50395	13235		
DOUBLE DOOR BOX	1000x800x200	1	BIL-50500	10445		
DOUBLE DOOR BOX	1000x800x300	1	BIL-50520	11950		
DOUBLE DOOR BOX	1000x1000x300	1	BIL-50540	13215		
DOUBLE DOOR BOX	1000x1200x300	1	BIL-50550	15140		

MOQ. Minimum order quantity in nos.

Type	Cat No	L.P
Set of Wall Mounting bracket (small)	BIL-WM-S	80
Set of Wall Mounting bracket (big)	BIL-WM-B	100

Technical Particulars (BHARTIA BOXES)

- Fabricated from 1.2mm / 1.6mm CRCA sheet steel
(Sizes upto BIL-50170 made from 1.2mm CRCA, beyond this using 1.6mm CRCA)
- Powder coated to shade RAL 7032
- Foamed-in PU gasket
- Hinged door, interchangeable LHS / RHS, opening angle 180 deg for standard hinge & 120 deg for concealed hinge in bigger sizes.
- IP-55 & 66 Degree of protection
- Mounting plate made using 2mm CRCA sheet steel, Deep Orange colour shade RAL 2000
- Cable gland plate 2mm thick provided at bottom
- Cam locking arrangement
- Powder coated to RAL : 7035 structure finish
- Mounting Plate made up of 2.0mm Galvanised steel

Note : Cutout charges will be extra

Enclosure Systems BCH



- Hinged door with cam locking arrangement
- Fabricated from 1.2/1.6 mm stainless steel sheet
- Mounting Plate made up of 2.0mm Galvanised steel
- SS grade 304
- Foamed - in PU gasket
- Box upto BIL - 90405020 is made up of 1.2 mm SS & above of 1.6 MM SS.

'BCH - SS' (Stainless Steel)

Type	Size (WxHxD) mm	MOQ Nos.	Cat No.	List Price Rs.
SINGLE DOOR BOX	200X300X150	10	BIL-90203015	Price on request
SINGLE DOOR BOX	300X300X200	10	BIL-90303020	
SINGLE DOOR BOX	400X400X200	10	BIL-90404020	
SINGLE DOOR BOX	400X500X200	10	BIL-90405020	
SINGLE DOOR BOX	400X600X200	10	BIL-90406020	
SINGLE DOOR BOX	500X600X200	10	BIL-90506020	
SINGLE DOOR BOX	600X600X200	10	BIL-90606020	
SINGLE DOOR BOX	600X800X200	10	BIL-90608020	
SINGLE DOOR BOX	500X700X300	10	BIL-90507030	
SINGLE DOOR BOX	800X800X300	10	BIL-90808030	

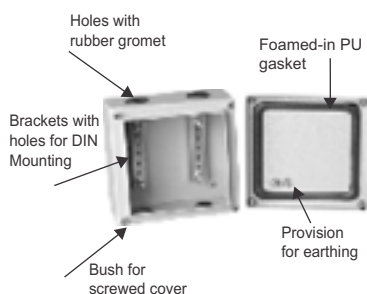
MOQ - Minimum order quantity in nos.

Note - SS grade 304

Terminal Boxes



- 43 Different Versions
- Min. Size : 150 X 150 X 80
- Max Size : 800 X 400 X 120
- IP 55/IP66



Technical Particulars (TERMINAL BOXES)

- Fabricated from 1.2mm CRCA sheet steel
- Powder coated to shade RAL 7035 Structure finish
- Foamed-in PU gasket
- Provided with screwed cover on top
- IP-55 & 66 Degree of protection
- Brackets provided inside to facilitate DIN rail mounting
- Holes with Gromet provided to facilitate cable entry in IP 55 terminal boxes

Note: Cutout charges will be extra

Box Size (W x H x D)	IP-55 Range			IP-66 Range	
	MOQ	Cat. No.	List Price Rs	Cat. No.	List Price Rs
150x150x80	5	BIL-70000	925	BIL-80000	965
200x150x80	-		-	BIL-80100	1020
300x150x80	5	BIL-70010	1060	BIL-80010	1180
200x200x80	5	BIL-70020	1110	BIL-80020	1200
300x200x80	5	BIL-70030	1155	BIL-80030	1260
400x200x80	-		-	BIL-80110	1285
600x200x80	-		-	BIL-80130	1660
150x150x120	5	BIL-70040	990	BIL-80040	1070
200x150x120	-		-	BIL-80150	1125
300x150x120	5	BIL-70050	1200	BIL-80050	1235
200x200x120	5	BIL-70060	1150	BIL-80060	1295
300x200x120	5	BIL-70070	1275	BIL-80070	1425
400x200x120	5	BIL-70080	1500	BIL-80080	1630
300x300x120	5	BIL-70090	1600	BIL-80090	1695
400x150x120	-		-	BIL-80170	1450
400x300x120	5	BIL-70180	1975	BIL-80180	2130
400x400x120	5	BIL-70190	2285	BIL-80190	2465
500x200x120	5	BIL-70200	1875	BIL-80200	2050
500x300x120	5	BIL-70210	2270	BIL-80210	2405
600x200x120	5	BIL-70220	2010	BIL-80220	2100
600x300x120	5	BIL-70230	2445	BIL-80230	2600
600x400x120	5	BIL-70240	2810	BIL-80240	2890
800x200x120	5	BIL-70250	2700	BIL-80250	2755
800x400x120	5	BIL-70260	3395	BIL-80260	3460

MOQ-Minimum order quantity in nos.

Enclosure Systems BCH

Techno Modular Enclosures

Size of Enclosure (W x H x D in mm)	Cat. No.	Enclosure Version*					Plinth		Side Covers (Pair)	
		MOQ No.	LP 001 Rs.	LP 002 Rs.	LP 003 Rs.	LP 004 Rs.	Cat. No.	List Price Rs.	Cat. No.	List Price Rs.
600x1800x400	TME 061804	1	22220	23695	18870	20350	TPL 061804	2240	TSC 061804	4145
800x1800x400	TME 081804	1	26145	27875	21505	23180	TPL 081804	2480	TSC 081804	4145
1000x1800x400	TME 101804	1	34130	37670	28330	31170	TPL 101804	2890	TSC 101804	4145
1200x1800x400	TME 121804	1	39925	41855	33485	35545	TPL 121804	2955	TSC 121804	4145
600x1800x500	TME 061805	1	23440	25115	20325	21895	TPL 061805	2310	TSC 061805	4480
800x1800x500	TME 081805	1	27500	28980	22995	24795	TPL 081805	2600	TSC 081805	4480
1000x1800x500	TME 101805	1	37995	39660	31810	33485	TPL 101805	2800	TSC 101805	4480
1200x1800x500	TME 121805	1	40955	42250	34390	35800	TPL 121805	3005	TSC 121805	4480
600x2000x400	TME 062004	1	23955	25595	20325	22090	TPL 062004	2240	TSC 062004	4140
800x2000x400	TME 082004	1	28080	29620	22155	25115	TPL 082004	2480	TSC 082004	4140
1000x2000x400	TME 102004	1	37995	40570	29620	32010	TPL 102004	2650	TSC 102004	4140
1200x2000x400	TME 122004	1	42370	44170	35160	36830	TPL 122004	2850	TSC 122004	4140
400x2000x500	TME 042005	1	19965	21580	17000	18800	TPL 042005	2465	TSC 042005	4625
600x2000x500	TME 062005	1	24340	26985	20870	23180	TPL 062005	2470	TSC 062005	4625
800x2000x500	TME 082005	1	28980	30910	24080	26400	TPL 082005	2630	TSC 082005	4625
1000x2000x500	TME 102005	1	38635	41210	32070	34385	TPL 102005	2990	TSC 102005	4625
1200x2000x500	TME 122005	1	42500	44170	35545	37220	TPL 122005	3150	TSC 122005	4625
400x2000x600	TME 042006	1	21505	23055	18543	20220	TPL 042006	2375	TSC 042006	5580
600x2000x600	TME 062006	1	25440	27430	21895	23695	TPL 062006	2420	TSC 062006	5580
800x2000x600	TME 082006	1	29560	31295	24730	26405	TPL 082006	2700	TSC 082006	5580
1000x2000x600	TME 102006	1	39670	41985	32970	35545	TPL 102006	3075	TSC 102006	5580
1200x2000x600	TME 122006	1	43785	45720	36705	38635	TPL 122006	3075	TSC 122006	5580
600x2000x800	TME 062008	1	26530	29235	22230	24525	TPL 062008	2780	TSC 062008	6995
800x2000x800	TME 082008	1	31750	34510	25585	28300	TPL 082008	3140	TSC 082008	6995
1000x2000x800	TME 102008	1	41210	43265	34260	36550	TPL 102008	3290	TSC 102008	6995
1200x2000x800	TME 122008	1	46360	47975	39410	41210	TPL 122008	3460	TSC 122008	6995
600x2200x600	TME 062206	1	27370	29235	22995	24600	TPL 062206	2445	TSC 062206	5925
800x2200x600	TME 082206	1	32195	33745	26660	28590	TPL 082206	2700	TSC 082206	5925
1000x2200x600	TME 102206	1	43265	45075	34645	36550	TPL 102206	2890	TSC 102206	5925
1200x2200x600	TME 122206	1	48490	50225	39660	41490	TPL 122206	3100	TSC 122206	5925
600x2200x800	TME 062208	1	29105	31935	25370	28060	TPL 062208	2810	TSC 062208	6850
800x2200x800	TME 082208	1	34130	35805	28465	30910	TPL 082208	3140	TSC 082208	6850
1000x2200x800	TME 102208	1	46625	48680	38120	39925	TPL 102208	3290	TSC 102208	6850
1200x2200x800	TME 122208	1	50225	52160	41725	32925	TPL 122208	3460	TSC 122208	6850

*Baying kit (BIL-14280) Rs. 1345 is also available for Enclosure Version. For extra accessories, please contact nearest branch office.

MOQ-Minimum order quantity in nos.

Note : Cutout charges will be extra

Freight charges will be extra at actuals

Enclosure Systems **BCH**



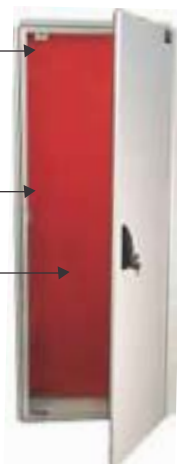
**Secured
3 point
Locking system**

**100 %
BOLTED**

Brackets for
3 point lock

Robust Mounting
Plate 3MM Thick,
RAL 2000

Gland Plate



Modular Enclosures

- Enclosures
 - Minimum size in mm :
600 x 1800 x 400 (W x H x D)
 - Maximum size in mm :
1200 x 2200 x 800 (W x H x D)
 - IP 54 / IP 55 degree of protection
 - Wide range of accessories

Features

- Completely modular in all the three axis
- Powder coated surface (RAL 7032) for excellent finish and durability
- PU Gasket ensuring higher degree of ingress protection
- 3mm mounting plate as a standard
- Manufactured on CNC Turret punch press for higher precision, finish and repeated accuracy
- Ideal for :
 - Special purpose machines
 - Control panels
 - Drives
 - Starter enclosures
 - Accessories for mounting 19" equipment

Enclosure Versions

- 001 - with mounting plate and rear cover
- 002 - with mounting plate and rear door
- 003 - without mounting plate and with rear cover
- 004 - without mounting plate and with rear door

To Order And Calculate List Price

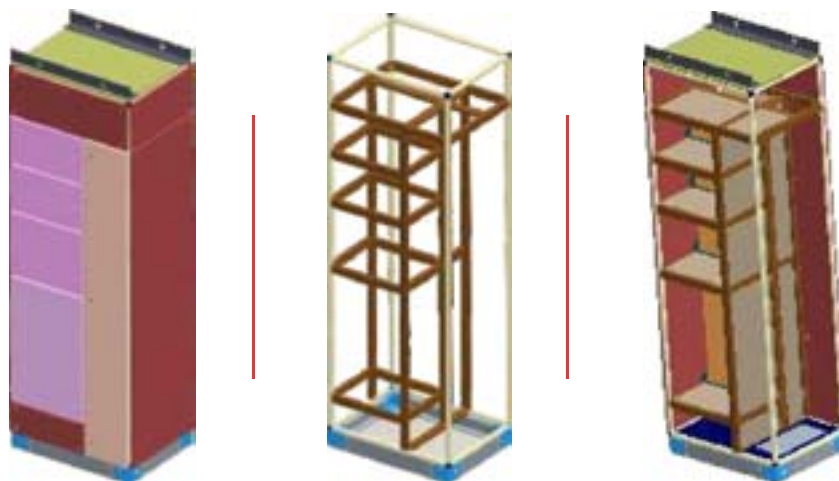
- (a) Choose Cat. No. and LP of Enclosure version from 001, 002, 003 or 004
- (b) Add Cat. No. and LP of Plinth
- (c) Add Cat. No. and LP of Side Covers pair

General Technical Particulars

- IP54/55 degree of protection
- Fabricated from 2/1.6mm CRCA (frame made of 2mm CRCA-U/L, door & cover of 1.6 mm CRCA sheet)
- Fully bolted construction
- Mounting plate 3mm thick - standard & Powder Coated to RAL-2000
- Plinth (optional) 100mm high fabricated from 2mm
- Powder coated to paint shade RAL 7032
- Cable entry provision is given from Bottom as standard
- Foamed-in PU gasket
- Powder coated to RAL : 7035 structure finish
- Hinge design allows 120 deg. Door opening
- 3 point lock provided as standard
- Door stiffener with provision of drilling holes for wiring harness.
- Side Covers - Pair : consisting of 1no. LHS and 1no. RHS cover
- To calculate limiting dimension of the enclosure, add 44mm to the width to account for Side Covers,
- 22mm to the height for Top Cover & 44mm to the depth on account of Front and Rear door / cover.

Note : upto 800 mm width single door
1000 mm & 1200 mm width double door

Highlights of **BCH MCC / PCC Cubicle**



- 100% Modular Structure; can be dispatched into flat pack.
- Flexible Horizontal / Vertical busbar and Cable Compartment Configuration.
- Compartmentalised - upto Form 4.
- IP 54 with polyurethane foam gasketing.
- Doors available in height of 200mm & multiplies of 100mm.
- Horizontal Busbar chambers, Vertical cable chambers are provided with Individual bolted covers.
- Rear bolted covers.
- Plinth (modular) & Side cover (Optional.).
- Wide Variety of Standard MCC range.
- Additional accessories like Cable support, Busbar Support and Baying kit are available.
- Double front execution can also be provided.
- Lifting Channel provided as standard (instead of Eye-bolts) for higher load-carrying capacity.
- Adjustable (Depth wise at the pitch of 25mm) mounting plates.
- Bus Bar chamber (Top / Bot) and Feeder doors (Left / Right) are interchangeable.
- Doors are open able with hinges for 120 degree opening and Metal locks.
- Panel can be expanded in all 3 dimensions and bayed together by using Baying Kit.
- All cornerbars and crossbars can be placed at 25mm intervals horizontal, vertical, longitudinal.
- Horizontal & vertical separation plates are provided between all feeder compartments.
- Colours: RAL-7032 (structure finish) for structure, covers & doors. RAL-2000 (smooth finish) for Mtg. Plate, RAL-9000 (smooth finish) for Plinth and lifting channel.
- Sheet thickness 2mm CRCA for Structure, Mtg plate & Mtg Rail, 1.6mm CRCA for Covers & Doors, 1.2mm CRCA for Separation Plates.

BCH Control Desk



Enclosure Systems *technoRACKS* BCH



Key Attributes:

- Aesthetic & robust construction
- Mounting Fan /s in top doesn't take usable "U" space.
- Special type of Wallmounting hardware.
- Provision for earthing available in the cabinets.
- Highly corrosion resistant in nature.

19" Wall Mount Racks

Dimensions (H x W x D) mm	MOQ Nos.	Cat. No.	List Price Rs.
6UX550X400	1	BIL-W-6-5504	3460
9UX550X400	1	BIL-W-9-5504	3970
6UX550X500	1	BIL-W-6-5505	3820
9UX550X500	1	BIL-W-9-5505	4440
12UX550X500	1	BIL-W-12-5505	4940
15UX550X500	1	BIL-W-15-5505	5805

MOQ-Minimum order quantity in nos.

Standard Configuration: Wallmount cabinet, 2-Pairs of 19" rail.

Notes : Accessories viz. Shelves, Fans, power strips, cable managers captive H/W & wall mounting hardware etc. will be extra as per the accessories list furnished in the price list.
Wall mount racks price do not include freight & will be extra at actuals



Key Attributes:

- Floor mounting robust design.
- Lockable & removable side panels.
- 2-pairs of adjustable 19" rails.
- Front door with toughened glass & perforation.
- High load bearing capacity.
- Rear vented door.
- Provision for fan mounting in top which doesn't take usable "U" Space.
- Superior cable management facility in extra wide racks.
- 4-integrated vertical cable managers are default design of 800mm wide racks.
- Rear space saving split door with 3-point secure locking in extra wide (800mm) racks.

19" Networking Racks

Dimensions (H x W x D) mm	MOQ Nos.	Cat. No.	List Price Rs.
24U X 600 X 600	1	BIL-N-062406	19345
24U X 600 X 800	1	BIL-N-062408	21380
24U X 800 X 600	1	BIL-N-082406	24230
24U X 800 X 800	1	BIL-N-082408	26470
30U X 600 X 600	1	BIL-N-063006	21380
30U X 600 X 800	1	BIL-N-063008	23415
30U X 800 X 600	1	BIL-N-083006	26470
30U X 800 X 800	1	BIL-N-083008	29015
36U X 600 X 600	1	BIL-N-063606	23414
36U X 600 X 800	1	BIL-N-063608	25960
36U X 800 X 600	1	BIL-N-083606	29015
36U X 800 X 800	1	BIL-N-083608	31560
42U X 600 X 600	1	BIL-N-064206	26980
42U X 600 X 800	1	BIL-N-064208	28910
42U X 800 X 600	1	BIL-N-084206	31865
42U X 800 X 800	1	BIL-N-084208	35120
45U X 600 X 600	1	BIL-N-064506	31050
45U X 600 X 800	1	BIL-N-064508	32580
45U X 800 X 600	1	BIL-N-084506	34103
45U X 800 X 800	1	BIL-N-084508	37160

MOQ-Minimum order quantity in nos.

Notes : 1) Networking racks price do not include freight & this will be extra at actuals.

For more details visit : www.bchindia.com/technorack

19" Server Racks

Key Attributes:

- Floor mounting robust design.
- Lockable & removable side panels.
- 2-pairs of adjustable 19" rails.
- Front door with toughened glass & perforation.
- High load bearing capacity.
- Rear vented door.
- Provision for fan mounting in top which doesn't take usable "U" Space.
- Superior cable management facility in extra wide racks.
- 4-integrated vertical cable managers are default design of 800mm wide racks.
- Rear space saving split door with 3-point secure
- locking in extra wide (800mm) racks.

Dimensions (H x W x D) mm	MOQ Nos.	Cat. No.	List Price Rs.
24U X 600 X 900	1	BIL-S-062409	21840
24U X 600 X 1000	1	BIL-S-062410	23210
30U X 600 X 900	1	BIL-S-063009	24690
30U X 600 X 1000	1	BIL-S-063010	25655
36U X 600 X 900	1	BIL-S-063609	27080
36U X 600 X 1000	1	BIL-S-063610	28505
42U X 600 X 900	1	BIL-S-064209	30440
42U X 600 X 1000	1	BIL-S-064210	32375
42U X 800 X 1000	1	BIL-S-084210	37260
45U X 600 X 900	1	BIL-S-064509	35190
45U X 600 X 1000	1	BIL-S-064510	37230

MOQ - Minimum order quantity in nos.

Notes: Server racks price do not include freight & this will be extra at actuals.

STANDARD CONFIGURATION: Basic frame, Top & bottom, Front Glass door with perforation, Rear vented door, Lockable & detachable side panels, 2-Pairs of 19" rails with depth members.



Key Attributes:

- Includes 1-Pair of 21" rails.
- Integrated side panels.
- Grouting arrangements along with grouting bolts.
- Provision for power & data cable entry / exit in top & bottom.

ETSI Racks

Dimensions (H x W x D) mm	MOQ Nos.	Cat. No.	List Price Rs.
2200 X 600 x 300	1	ITE-062203	7840
2200 X 600 x 600	1	ITE-062206	12625

MOQ - Minimum order quantity in nos.

Notes: Above ETSI configuration do not include front & rear door and covers.

All other accessories will be extra & will be furnished on request.

The prices mentioned above do not include freight.

19" Open Racks

Dimensions (H x W) mm	MOQ Nos.	Cat. No.	List Price Rs.
36U X 600	1	ITE-OF-0636	5090
45U X 600	1	ITE-OF-0645	6010

MOQ - Minimum order quantity in nos.

Notes: 1) Above Open Rack configuration does not include Shelves, Doors and Covers. All other accessories prices will be extra and will be furnished on request.

2) The Prices above do not include Freight and this will be extra at actuals.

For more details, visit : www.bchindia.com/technorack



Key Attributes:

- 1-Pair of vertical cable manager is default design.
- Surface pretreated and advance powder coated
- Grouting bolts as std. BOM.

Accessories for 19" Racks

Shelves

Fixed Shelf/Stationary Shelf

- Compatible to keep monitor, servers, non 19" Networking & allied equipments.

Key-Board Tray

- Sliding & rotatory type.

Canteliver Shelf

- It can accomodate light weighted networking & allied equipments like modem, routers etc.

Equipment Support Angle

- "L" type angles. Useful to keep non 19" heavy duty equipment in rack mounting position.

Sliding Shelf

- Useful to keep servers, networking & allied equipment which are required to slide out for operational & other purpose.

Fans/Fan Tray

- 220V 90 CFM Capacity. Can be mounted at the top either directly or through Fan housing unit (Fan Tray)

Description	Cat No.	List Price Rs.
Fixed Shelf (600mmD)	BIL-A-FS-L-06	865
Fixed Shelf (800mmD)	BIL-A-FS-L-08	1325
Fixed Shelf (900mmD)	BIL-A-FS-L-09	1480
Fixed Shelf (1000mmD)	BIL-A-FS-L-10	1580
Modem Tray	BIL-A-MD	815
Key board tray (Sliding & Rotatory)	BIL-A-KB-06	2545
Canteliver Shelf (1U)	BIL-A-CS-1	510
Canteliver Shelf (2U)	BIL-A-CS-2	764
Equipment Support Angle (600mmD)	BIL-A-ESA-06	305
Equipment Support Angle (800mmD)	BIL-A-ESA-08	360
Equipment Support Angle (900mmD)	BIL-A-ESA-09	440
Equipment Support Angle (1000mmD)	BIL-A-ESA-10	510
Sliding Shelf (900mmD)	BIL-A-SS-09	2545
Sliding Shelf (1000mmD)	BIL-A-SS-10	2650

Thermal Management

Description	Cat No.	List Price Rs.
1-Fan (Direct mounted)	BIL-A-SF	865
Fan-tray with 2-Fans (FHU)	BIL-A-FHU-2FANS	1835
Fan-tray with 4-Fans (FHU)	BIL-A-FHU-4FANS	3210

Cable Management

Description	Cat No.	List Price Rs.
Horizontal Cable Manager (1U)	BIL-A-HCM-1U	205
Horizontal Cable Manager (2U)	BIL-A-HCM-2U	255
Vertical Cable Manager (24U)	BIL-A-VCM-24U	305
Vertical Cable Manager (30U)	BIL-A-VCM-30U	410
Vertical Cable Manager (36U)	BIL-A-VCM-36U	460
Vertical Cable Manager (42U)	BIL-A-VCM-42U	510
Vertical Cable Manager (45U)	BIL-A-VCM-45U	560
45U (100x100) PVC cable	BIL-A-SPVC1010	2290
45U (100x100) PVC cable	BIL-A-DPVC1010	3720

Power Management

Description	Cat No.	List Price Rs.
6-Point 5Amp Horizontal Power Strip (19")	BIL-A-HPS-5AMP	665
5-Point 5/15Amp Horizontal Power Strip (19")	BIL-A-HPS-15AMP	1120
12-Point 5Amp Vertical Power Strip	BIL-A-12VPS-5AMP	1630
10-Point 5/15Amp Vertical Power Strip	BIL-A-10VPS-15AMP	1885
Earth continuity Kit (Earthing Kit)	BIL-A-ECT	665

Stability Management

Description	Cat No.	List Price Rs.
Castors (1-Set) Heavy Duty	BIL-A-CAS-HD	3010
Castors (1-Set) Light Duty	BIL-A-CAS	1795
Levelling Feet (1-Set)	BIL-A-LF	255
Stability Plate	BIL-A-SP	1530

Miscellaneous

Description	Cat No.	List Price Rs.
BAYING KIT	BIL-A-BK	285
BLANKING PANEL (1U)	BIL-A-BP-1U	102
BLANKING PANEL (2U)	BIL-A-BP-2U	122
BLANKING PANEL (3U)	BIL-A-BP-3U	153
BLANKING PANEL (4U)	BIL-A-BP-4U	204
BLANKING PANEL (5U)	BIL-A-BP-5U	255
Captive H/w (set of 10)	BIL-A-Captive-M6	102
Wallmounting H/w (set of 4)	BIL-A-wallmounting W	92

Notes : Packing & forwarding will be extra if accessories are ordered seprately.

6-Point 5A Hor. Power Strip

- All universal type socket along with on/off switch with fuse & indicator. Internal strips are made up of Berellium copper that has high rate of heat & mechanical tolerance.
- Other 5A or 5/15A Power strips have Indian style (Anchor) Sockets with on/off switch/MCB.

Castors

- 1-Set includes 4Nos. of castors, 2Nos. with foot operated brake & remaining 2 are free.

Levelling Feet

- 1-Set includes 4Nos. of Levelling Feet.

Stability Plate

- It Prevents the racks from toppling while taking out heavy duty servers.

Wires & Cables

- **Special Application Cables & Thermocouples**
 - **3-Core Flat Cables for Submersible Pump**
- Applications**



Special Cables & ThermocouplesBCH



Special Application Cables

- Cable Track Cables
- Torsion Cables
- Silicon Cables
- Teflon Cables
- Servo Cables
- Halogen Free Cables
- Hybrid Cables
- Bus Cables
- Compensating Cables



Thermocouples & RTDs



Applications

- Steel Industries
- Automobile
- Chemical & Petro Chemical
- Furnaces

For prices contact our nearest sales office.

3 Core Flat Cables For Submersible Pump Application

- Individual conductors from electrolytic copper drawn, bright annealed and geometrically bunched, ensures uniform insulation.
- Specially formulated PVC ensures long & trouble free service even in critical site conditions and ensures non glossy finish for insulation & sheathing material.
- On line measurement & monitoring including dielectric strength.
- Suitable for -15 to 70 deg C.



As per IS 694: 1990 with ISI mark

Cable Cat. Ref.	Conductor Area (nominal)	Current Carrying Capacity @ 40° C	Price Rs.	Std. Pkg. of units
	Sq. mm.	Amps		
CS0001A	1.0	12	For Prices Please contact our Nearest Sales office.	1
CS0015A*	1.5	14		1
CS0025A *	2.5	18		1
CS0040A **	4.0	26		1

* As per Conductor Class 2 of IS 8130: 1984

** As per Conductor Class 5 of IS 8130: 1984

Note: The strand diameter is nominal. However, construction of conductor is designed to satisfy the requirements of conductor resistance as per IS 8130: 1984

Generally conforming to IS 694: 1990

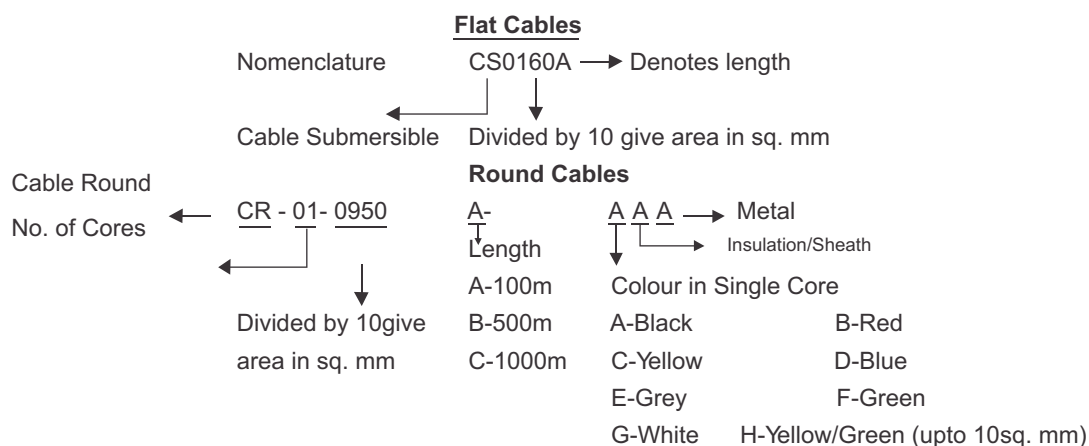
Cable Cat. Ref.	Conductor Area (nominal)	Current Carrying Capacity @ 40° C	Price Rs.	Std. Pkg. of units
	Sq. mm.	Amps		
CS0060A	6.0	31	For Prices Please contact our Nearest Sales office.	1
CS0100A	10.0	42		1
CS0160A	16.0	57		1
CS0250A	25.0	72		1
CS0350A	35.0	90		1
CS0500A	50.0	115		1

Note: The strand diameter is nominal. However, construction of conductor is designed to satisfy the requirements of conductor resistance as per IS 8130: 1984 Class 5 Conductor

6.0 to 50 sq mm also can be offered as per the IS on request.

70 sq mm also can be offered on request.

Standard packing of 100m (Coil), 500m and 1000m in drums for both Flat & Round Cables



Single & Multi Core Pvc Flexible Cables

As Per IS 694: 1990 - With ISI Marking

- Individual conductors from electrolytic copper drawn, bright annealed and geometrically bunched, ensures uniform insulation.
- Specially formulated PVC ensures long & trouble free service even in critical site conditions and ensures non glossy finish for insulation & sheathing material.
- On line measurement & monitoring including dielectric strength.
- Suitable for -15 to 70 deg C.

Cat. No.	Conductor Area (nominal)	Safe Current Carrying Capacity 2 wires, Single Phase	
		In conduit / Trunking	Unenclosed clipped directly to a surface or on cable tray
Single Core	(Sq. mm)	(Amp.)	(Amp.)
CR01-0005A-AAA	0.5	4	4.5
CR01-0008A-AAA	0.75	7	8
CR01-0010A-AAA	1	11	12
CR01-0015A-AAA	1.5	13	16
CR01-0025A-AAA	2.5	18	22
CR01-0040A-AAA	4	24	29
CR01-0060A-AAA	6	31	37
CR01-0100A-AAA	10	42	51
CR01-0160A-AAA	16	57	68
CR01-0250A-AAA	25	71	86
CR01-0350A-AAA	35	91	100
CR01-0500A-AAA	50	120	145
Generally Conforming to IS 694:1990			
CR 01 0700AAAA	70	-	214
CR 01 0950AAAA	95	-	260
CR01-1200A-AAA	120	-	305
CR01-1500A-AAA	150	-	355

Standard packing of 100m, 500m & 1000m available. For prices please contact nearest sales office.

Multi-core

Cat. No. 2 Core	Cat. No. 3 Core	Cat. No. 4 Core	Conductor area (nominal)	Current Rating (Amps)
CR02-0005A-AAA	CR03-0005A-AAA	CR04-0005A-AAA	0.5	4
CR02-0008A-AAA	CR03-0008A-AAA	CR04-0008A-AAA	0.75	7
CR02-0010A-AAA	CR03-0010A-AAA	CR04-0010A-AAA	1	12
CR02-0015A-AAA	CR03-0015A-AAA	CR04-0015A-AAA	1.5	15
CR02-0025A-AAA	CR03-0025A-AAA	CR04-0025A-AAA	2.5	20
CR02-0040A-AAA	CR03-0040A-AAA	CR04-0040A-AAA	4	27
CR02-0060A-AAA	CR03-0060A-AAA	CR04-0060A-AAA	6	35
CR02-0100A-AAA	CR03-0100A-AAA	CR04-0100A-AAA	10	46

Cat. No. 5 Core	Cat. No. 6 Core	Conductor area (nominal)	Current Rating (Amps)
CR05-0005A-AAA	CR06-0005A-AAA	0.5	4
CR05-0008A-AAA	CR06-0008A-AAA	0.75	7
CR05-0010A-AAA	CR06-0010A-AAA	1	12
CR05-0015A-AAA	CR06-0015A-AAA	1.5	15
CR05-0025A-AAA	CR06-0025A-AAA	2.5	20
CR05-0040A-AAA	CR06-0040A-AAA	4	27

Above 6 core, available on request.

The conductor will satisfy the resistance requirement of IS 8130:1984 Class- 5.

Sizes 0.5 to 4 sq mm from 2 to 5 core with ISI mark, rest all generally conforming to the IS.

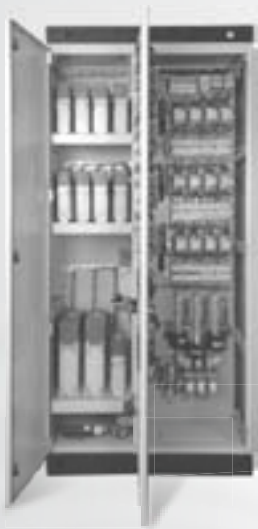
Standard packing of 100m, 500m & 1000m available.

For prices contact our nearest sales office.



Power Factor Control Products

- **LT Power Capacitors - Box Type**
- **LT Power Capacitors - Cylindrical Type**
- **Automatic Power Factor Controllers (APFC Relays & Intelligent Power Factor Controllers (IPFC Relays**
- **Network Analysers**
- **Cu Wound Detuned Harmonic Filter Reactors**
- **Agri Duty Capacitors - Cylindrical & Box Type**
- **Run (MFD) Capacitors**
- **APFC Panels**



LT Power Capacitors- Box TypeBCH



Type MPP-BN

- Normal duty
- Metallized Polypropylene film

Type MPP-BH

- Heavy duty, Long Life
- Metallized Polypropylene film : Extra Thick ensuring dielectric content to almost double

Type BMDXL

- Super heavy duty low loss
- Two Layers of Metallized Polypropylene film

Type APP-BH

- Super heavy duty
- All Polypropylene film

APP-BH Super Heavy Duty - 440V

KVAR Rating	Cat. No.	MRP Rs.
5	BAHB350C0050	2755
7.5	BAHB350C0075	4055
10	BAHB350C0100	5300
12.5	BAHB350C0125	6630
15	BAHB350C0150	7955
20	BAHB350C0200	10610
25	BAHB350C0250	13260

MPP-BN (Normal duty)-440V

KVAR Rating	Cat. No.	MRP Rs.
1	BMNB350C0010	255
2	BMNB350C0020	480
3	BMNB350C0030	703
4	BMNB350C0040	948
5	BMNB350C0050	1255
6	BMNB350C0060	1418
7	BMNB350C0070	1657
7.5	BMNB350C0075	1775
8	BMNB350C0080	1887
9	BMNB350C0090	2020
10	BMNB350C0100	2244
12	BMNB350C0120	2690
12.5	BMNB350C0125	2805
15	BMNB350C0150	3366
16	BMNB350C0160	3590
17.5	BMNB350C0175	3925
18	BMNB350C0180	4040
20	BMNB350C0200	4480
25	BMNB350C0250	5600
30	BMNB350C0300	7435
50	BMNB350C0500	12390

MPP-BH (Heavy Duty, Long Life)-440V

KVAR Rating	Cat. No.	MRP Rs.
1	BMHB350C0010	367
2	BMHB350C0020	735
3	BMHB350C0030	1100
4	BMHB350C0040	1470
5	BMHB350C0050	1835
6	BMHB350C0060	1865
7	BMHB350C0070	2175
7.5	BMHB350C0075	2330
8	BMHB350C0080	2490
9	BMHB350C0090	2800
10	BMHB350C0100	3060
12	BMHB350C0120	3670
12.5	BMHB350C0125	3825
15	BMHB350C0150	4590
16	BMHB350C0160	4890
17.5	BMHB350C0175	5355
18	BMHB350C0180	5510
20	BMHB350C0200	6120
25	BMHB350C0250	7650
30	BMHB350C0300	9790

BMDXL: Super Heavy duty , Low loss - 440V

KVAR Rating	Cat. No.	MRP Rs.
1	BMXB350C0010	590
2	BMXB350C0020	1185
3	BMXB350C0030	1775
4	BMXB350C0040	2365
5	BMXB350C0050	2650
6	BMXB350C0060	3185
7	BMXB350C0070	3715
7.5	BMXB350C0075	3980
8	BMXB350C0080	4245
9	BMXB350C0090	4775
10	BMXB350C0100	5200
12	BMXB350C0120	6245
12.5	BMXB350C0125	6500
15	BMXB350C0150	7420
16	BMXB350C0160	7915
17.5	BMXB350C0175	8655
18	BMXB350C0180	8905
20	BMXB350C0200	9895
25	BMXB350C0250	12365
27	BMXB350C0270	13355
30	BMXB350C0300	14840

*Note: For 415V Capacitors replace 'C' by 'M' in Catalogue No.



Heavy Duty
MA/C/CE/TER Series

KVAR rating	Cat. No.	MRP Rs.
440V, 3-Ph., 50HZ-With Connectors		
2.5	MACCETER-2.5-440V	1260
5.0	MACCETER-5-440V	1285
7.5	MACCETER7-5-440V	1805
10.0	MACCETER-10-0-440V	2900
12.5	MACCETER-12-5-440V	2975
15	MACCETER-15- 440V	3485
20	MACCETER-20-440V	4520
25	MACCETER-25-440V	5440
30	MACCETER-30-440V	6385

Prices for other Voltages (230 / 400 / 415 / 480 / 525 / 690 V) available on request

Heavy Duty
Re-inforced MA/C/CE/RTF Series

KVAR Rating	Cat. No.	MRP Rs.
440V, 3-Ph., 50HZ. Specially designed for Harmonic Filter Application		
2.5	MACCERTF-2.5- 440V	2105
5.0	MACCERTF-5-440V	2135
7.5	MACCERTF-7.5- 440V	3127
10.0	MACCERTF-10- 440V	4140
12.5	MACCERTF-12.5- 440V	5170
15	MACCERTF-15- 440V	6210
20	MACCERTF-20- 440V	8295
25	MACCERTF-25- 440V	10330
30	MACCERTF-30- 440V	12385

Prices for other voltages (230V / 400V / 460V) are

available

APFC Relays & ReactorsBCH

Intelligent Power Factor Controllers (IPFC)

Dimensions (mm)	Cat No.	MRP Rs.
144 x 144	RG3-12C**	25230
144 x 144	RG3-12CS**	29820
144 x 144	RG3-15C**	24900
144 x 144	RG3-15CS**	29500

NEW

NEW

Note : **RG3-8/12/15 and RG3-12/15CS available in 230V only



- 3-Phase / 3CTs
- Connecting Single-Phase & 3-Phase Capacitors
- Compensation of Each Phase
- Measures : A, Cos-Ø, Total W, Total VAR, Total VA, Total KWH, Total KVAh
- Harmonic Measurement (up to 19th)
- THD 1% THD V%
- Programmable THD Protection
- Programmable Discharge Time
- Programmable THD Alarm
- Password Protection for setup
- Overheat Protection (Optional)
- RS-485 Communication (Optional)

Now 15 step

- RG-15C - Intelligent relay PFC with smart switching with all 15 steps relay connection
- RG-15C - Intelligent relay PFC with smart switching with all 15 steps relay connection with communication

Automatic Power Factor Controllers (APFC)

Dimensions (mm)	Cat No.	MRP Rs.
5 Steps		
144 x 144	RG-5T*	11230
6 Steps		
144 x 144	RG-6T*	12405
96 x 96	RG-6T* (96x96)	11230
8 Steps		
144 x 144	RG-8T*	12990
144 x 144	RG3-8T**	14170
12 Steps		
144 x 144	RG-12T*	15590
144 x 144	RG3-12T**	17600

Note : Please Complete code with Voltage (230V & 415V)
RG3-8/12 available in 230V only

CU Copper Wound Detuned Harmonic Filter Reactors



Specifications

7% Detuned , 3 Phase , 50 Hz
440V Rated Voltage
(Other voltages also available)

Resonant Frequency : 189 Hz

Designed to withstand 35% over current than what is expected to flow normally

Low core losses

Protection by Thermal Switch

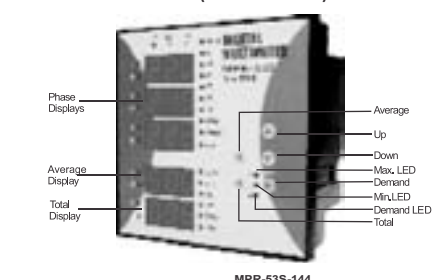
Ratings	Cat No.	MRP
5 KVAR	BDR-5-C	on request
10 KVAR	BDR-10-C	on request
12.5 KVAR	BDR-12.5-C	on request
15 KVAR	BDR-15-C	on request
20 KVAR	BDR-20-C	on request
25 KVAR	BDR-25-C	on request

Digital Network Analysers BCH

Sl. No.	Description	Cat. No	MRP Rs.
MPR-53 Series			
1	With Pulse Output, LED Display (96x96 mm)	MPR-53-96	13340
2	With Pulse Output, LED Display (144x144 mm)	MPR-53-144	On request
3	With Pulse Output, LED Display (DIN)	MPR-53-DIN	14050
MPR-53S Series			
4	With RS-485 PC Communication (MODBUS-RTU Protocol) and Pulse Output, LED Display (96x96 mm)	MPR-53S-96	18120
5	With RS-485 PC Communication (MODBUS-RTU Protocol) and Pulse Output, LED Display (144x144 mm)	MPR-53S-96	On request
6	With RS-485 PC Communication (MODBUS-RTU Protocol) and Pulse Output, LED Display (DIN)	MPR-53S-DIN	18835
MPR-60S Series			
7	With Total Harmonic Measurement, LCD Display (THD V%, THD I%) (96x96 mm)	MPR-60S	24435
8	With Total Harmonic Measurement, LCD Display + Digital Input and Digital Output (THD V%, THD I%) (96x96 mm)	MPR-60S-10	On request
MPR-63 Series			
9	With Harmonic Measurement, LCD Display (THD V%, THD I%, up to 31th harmonic for Current & Voltage separately) (96x96mm)	MPR-63	31765
10	With Harmonic Measurement, LCD Display + Digital Input and Digital Output (THD V%, THD I%, up to 31th harmonic for Current & Voltage separately) (96x96mm)	MPR63-10	On request
MPR-SW - SOFTWARE FOR MONITORING & SAVING PARAMETERS FOR MPR SERIES			
11	For 1 MPR Series	MPR-SW-1	9570
12	For 5 MPR Series	MPR-SW-5	19040
13	For 10 MPR Series	MPR-SW-10	28400
14	For 15 MPR Series	MPR-SW-15	38175
15	For 20 MPR Series	MPR-SW-20	47340
ACCESSORIES FOR MPR SERIES			
16	RS232 TO RS485 Converter with Serial Cable & Power Adaptor	RS-C1	14485
17	RS-485 / USB Converter for communicating PC with USB Cable	RS-USB2	11425
18	Amplifies the Communication Data Signal* 1	RPT-1	On request

Note : *RPT-1 must be used for each 20 devices.

MPR 53 S-144 (144x144 mm)



MPR-53S-DIN

Measured Parameters

Phase - Neutral Voltages (V_{LN})
 Phase - Phase Voltages (V_{LL})
 Average Phase - Neutral Voltage Average
 Phase - Phase Voltage Phase Currents (I)
 Total Current (\hat{I})
 Power Factor (P.F) Frequency (Hz)
 Active Power (P)
 Max. And Min. Demand Values
 Reactive Power (Q)

Apparent Power (S)
 Total Active Power ($\hat{a}P$)
 Total Reactive Power ($\hat{a}Q$)
 Total Apparent Power ($\hat{a}S$)
 Active Energy - Import (kWh)
 Active Energy - Export (kWh)
 Reactive Energy - Capacitive (kVArh)
 Reactive Energy - Inductive (kVArh)

MPR 63/MPR63-10



MPR-63 / MPR63- 10 :
 THD V%, THD I%,
 up to 31th harmonic for
 current and voltage separately.
 • Digital Output
 • Digital Input (only for MPR63-10)

MPR-60S / MPR60S-10 :
 THD V%, THD I%
 • Digital Output
 • Digital Input (only for MPR60S-10)

CE

Measured Parameters

2nd, 3rd, 4th ... 31th Harmonic for I and V.
 Phase - Neutral Voltages (V_{LN})
 Phase - Phase Voltages (V_{LL})
 Average Phase - Neutral Voltage
 Average Phase - Phase Voltage
 Phase Currents (I)
 Neutral Current
 Total Current (\hat{I})
 Power Factor (P.F)
 Cos ϕ
 Frequency (Hz)
 Max., Min. and Demand Values

Active Power (P)
 Reactive Power (Q)
 Apparent Power (S)
 Total Active Power ($\hat{a}P$)
 Total Reactive Power ($\hat{a}Q$)
 Total Apparent Power ($\hat{a}S$)
 Active Energy - Import (kWh)
 Active Energy - Export (kWh)
 Reactive Energy - Capacitive (kVArh)
 Reactive Energy - Inductive (kVArh)
 Total Harmonic Distortion for Voltage (THD V %)
 Total Harmonic Distortion for Current (THD I %)

3Phase Automatic Power Factor Correction (APFC) Panels NEW

Key Features

- Advanced Micro Controller based Power Factor Controller with Self-diagnostic Sensing and Control of Capacitor Bank Stages.
- High performance 'BCH' Cylindrical & Box type Capacitors.
- Capacitor duty Contactors for reliable & trouble free operation.
- Choice of Bhartia-Celduc's world class Solid State Relay (SSR) with TMS² technology as an option.
- Choice of selection of Capacitors as per application & site conditions.
- Thoughtfully designed Panels with provision for louvres & cooling fan for proper ventilation to manage heat load.
- Enclosure with Epoxy based paint shade RAL 7032 and mounting plates with RAL 2000.
- PU Foam Gasketing for sustained Ingress Protection of the Panel.

Five Standard Versions of APFC Panels are available depending upon Switching Sequence, Mode of Control (Automatic & Manual options) & Type of Capacitors (Cylindrical / Box type) used.

VERSION 1 - With BCH MPP Heavy Duty Cylindrical Capacitors & **WITHOUT** Manual option.

VERSION 2 - With BCH MPP Heavy Duty Reinforced Cylindrical Capacitors & **WITHOUT** Manual option.

VERSION 3 - With BCH MPP Heavy Duty Cylindrical Capacitors & **WITH** Manual option.

VERSION 4 - With BCH MPP Heavy Duty Reinforced Cylindrical Capacitors & **WITH** Manual option.

VERSION 5 - With BCH MPP-BH Heavy Duty Long Life, Box Type Capacitors & **WITH** Manual option.

(Other tailor made versions on request)

Common Features

CAPACITOR RATING - 40 to 200KVAR in Standard Ratings of 40, 50, 60, 75, 100, 125, 150, 175 & 200 KVAR with suitable banking arrangement.

MOUNTING - Wall Mounting up-to 75KVAR & Floor Mounting above 75 KVAR ratings.

INCOMING - BCH-TERASAKI 3-P MCCB with Rotary handle.

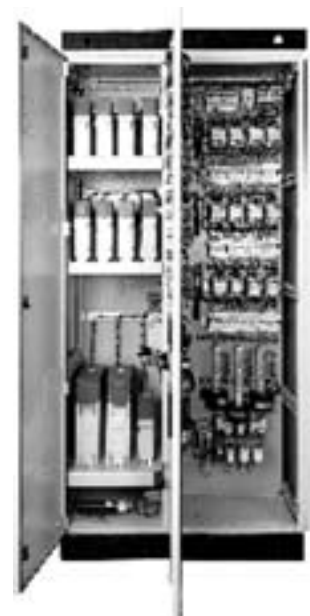
OUTGOING - TP MCB or HRC fuses with fuse base as standard (BCH-TERASAKI 3-P MCCB or SDFU and Compartmentalized outgoing feeders can also be provided depending upon size of panel on request).

CONTACTORS - BCH Capacitor Duty Contactors as standard (BCH-Celduc SSR's on request).

R-Y-B INDICATIONS - BCH Flexi-22 LED's.

AMMETER/VOLTMERS - Provided for VERSIONS 3, 4 & 5 only.

For prices contact our nearest sales office.



APFC Panels BCH

Version 1 & Version 2 - Cylindrical Type Capacitors & WITHOUT Manual Option

Version 1 & 2	KVAr	Output Steps	Cat No. Version 1/2	Incomer MCCB	Switching Sequence												Dimension
					1	2	3	4	5	6	7	8	9	10	11	12	W x H x D (mm)
	40	16x2.5	APFC40-1/2	100A(10KA)	2.5	2.5	5	10	20								600x1000x300
	50	20x2.5	APFC50-1/2	100A(10KA)	2.5	5	7.5	10	25								600x1000x300
	60	12x5	APFC60-1/2	125A(15KA)	5	10	10	15	20								600x1000x300
	75	15x5	APFC75-1/2	150A(15KA)	5	10	15	20	25								600x1000x300
	100	20x5	APFC100-1/2	200A(15KA)	5	10	15	20	25	25							900x1500x400
	125	25x5	APFC125-1/2	225A(15KA)	5	10	10	25	25	25	25						900x1500x400
	150	30x5	APFC150-1/2	250A(25KA)	5	10	10	25	25	25	25	25					900x1500x400
	175	35x5	APFC175-1/2	400A(35KA)	5	10	10	25	25	25	25	25	25				900x1500x400
	200	40x5	APFC200-1/2	400A(35KA)	5	10	10	25	25	25	25	25	25	25			900x1800x400

Version 3 & Version 4 - Cylindrical Type Capacitors & WITH Manual Option

Version 3 & 4	KVAr	Output Steps	Cat No. Version 3/4	Incomer MCCB	Switching Sequence												Dimension
					1	2	3	4	5	6	7	8	9	10	11	12	W x H x D (mm)
	40	16x2.5	APFC40-3/4	100A(10KA)	2.5	2.5	5	10	20								600x1000x300
	50	20x2.5	APFC50-3/4	100A(10KA)	2.5	5	7.5	10	25								600x1000x300
	60	12x5	APFC60-3/4	125A(15KA)	5	10	10	15	20								600x1000x300
	75	15x5	APFC75-3/4	150A(15KA)	5	10	15	20	25								600x1000x300
	100	20x5	APFC100-3/4	200A(15KA)	5	10	15	20	25	25							900x1500x400
	125	25x5	APFC125-3/4	225A(15KA)	5	10	10	25	25	25	25						900x1500x400
	150	30x5	APFC150-3/4	250A(25KA)	5	10	10	25	25	25	25	25					900x1500x400
	175	35x5	APFC175-3/4	400A(35KA)	5	10	10	25	25	25	25	25	25				900x1500x400
	200	40x5	APFC200-3/4	400A(35KA)	5	10	10	25	25	25	25	25	25	25			900x1500x400

Version 5 - Box Type Capacitors & WITH Manual Option

Version 5	KVAr	Output Steps	Cat No. Version 5	Incomer MCCB	Switching Sequence												Dimension
					1	2	3	4	5	6	7	8	9	10	11	12	WxHxD(mm)
	40	8x5	APFC40-5	100A(10KA)	5	10	10	15									900x1200x500
	50	10x5	APFC50-5	100A(10KA)	5	10	15	20									900x1200x500
	60	12x5	APFC60-5	125A(15KA)	5	10	20	25									900x1200x500
	75	15x5	APFC75-5	150A(15KA)	5	10	10	25	25								900x1200x500
	100	20x5	APFC100-5	200A(15KA)	5	10	10	25	25	25							900x1200x500
	125	25x5	APFC125-5	225A(15KA)	5	10	10	25	25	25	25						1000x1800x500
	150	30x5	APFC150-5	250A(25KA)	5	10	10	25	25	25	25	25					1000x1800x500
	175	35x5	APFC175-5	400A(35KA)	5	10	10	25	25	25	25	25	25				1000x1800x500
	200	40x5	APFC200-5	400A(35KA)	5	10	10	25	25	25	25	25	25	25			1200x1800x500

Note: The Dimensions indicated above are without foundation frame and lifting angle/lifting hooks

Motors

ENDURA

Low Voltage AC TEFC Squirrel
Cage Induction Motors

**EFF1
EFF2**

50°C
ambient temperature

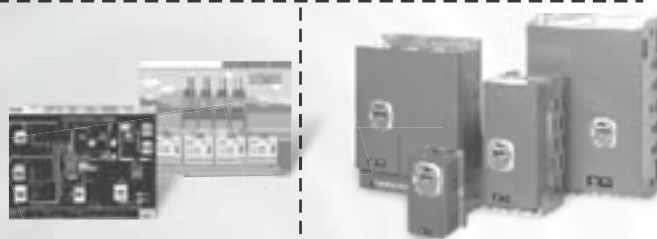
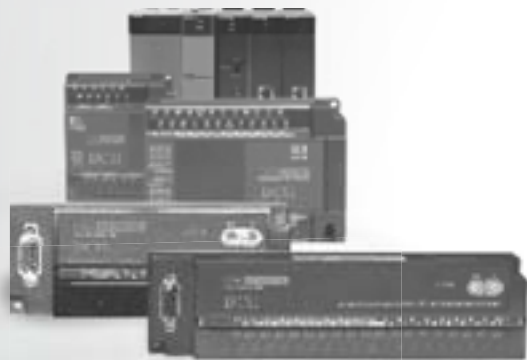
Class F



- 0.12 HP to 425 HP
- 2 to 8 Poles
- Vector Plus with forced cooling
- Upto 40 intermediate standard ratings
- High efficiency, consistent - life long
- Low loss for entire life
- Inverter duty motor
- No deration upto 50° C
- Dual coat winding wire as standard feature
- 6 terminals across the range
- Top, LHS, RHS termination flexibility
- CE marking

Automation Products

- **Programmable Logic Controllers**
- **Xpanel - Operator Interface**
- **SCADA**
- **Programmable Logic Relays**
- **AC Drives**
- **Soft Starters**
- **Digital DC Drives**
- **Analogue Thyristor Controlled Panels**
- **e-prox Sensors**
- **Senz prox Sensors**
- **Plug-in Relays**
- **Electronic Timers**
- **Programmable Preset Counter**



PLC Range of Automation Product

Series BP

- I/O capacity upto 128
- Suitable for Small size control system
- Easy expansion of Digital I/O, Analog I/O (Max 3 Block)
- Integrated Power module, CPU and I/O module
- High-speed operation : 200 nSec / Step
- Built in functions - High Speed Counter, PID function
- Self diagnostic functions : Operation delay, Memory error,
- I/O error, Battery error
- Large Instruction set : 55 Basic & 289 Application



Series CP

- I/O capacity upto 1024
- Compact and High Performance PLC
- Self diagnostic functions gives easy error detection
- High speed processing (200ns/step) by 16 bit PLC processor
- Max of 16 base expansion
- Large Instruction Set - More than 350 instructions
- Separate communication port available
- CPU embedded PID function



Series XP

- I/O capacity upto 8192
- Supports redundant system configuration
- High Speed Processing (75ns/step) by 32 bit PLC processor
- Provides more than 400 instructions
- CPU Embedded PID function
- Supports Floating Point Instruction (XP CPUs)



PLC, Xpanel & SCADA.....BCH

COMPREHENSIVE **HMI** SOLUTION

BCH Xpanel

WINDOWS CE BASED OPERATOR TERMINAL

- 4.3" to 12.1" TFT display
- 64K color TFT display
- External data interface : USB, SD/MMC
- Device communication via Ethernet, RS232/422/485
- Sufficient internal memory for large size application



BCH TOUCH PANEL

PANEL MOUNTED OPERATOR TERMINAL WITH BUILT IN SCADA SOFTWARE

- 12.1" & 19" TFT display
- High color resolution TFT display
- Panel mountable structure
- All in one embedded board
- Connectivity with 4 serial ports and 1 Ethernet port



BCH SCADA

SUPPORT SYSTEM REDUNDANCY AND
CLIENT/SERVER CONFIGURATION

- 75 tags to unlimited tags, development & runtime package
- Web version package for 2 users to unlimited users
- Supports system redundancy & client server architecture
- Connectivity to RDBMS
- Open system architecture
- Tag database compatibility with various application



PLC, Xpanel & SCADA BCH

CP/XP Series Programmable Logic Controller

Block	Model	Description	
CPU Module	CM1-CP4A/B/C/D/U	16K Steps / 384 I/O Points (B-RTC/C-RS232/D-RS422-485/U-USB)	For prices please contact our nearest sales office
	CM1-CP3A/B/P/U	32K Steps / 1024 I/O Points / Expandable (B-RTC/P-Ext Memo Card/U-USB)	
	CM1-XP1A/ R	128Ksteps / 8192 I/O Points / Expandable / RTC / floating point arithmetic / Supports Redundancy	
	CM1-XP2A	64Ksteps / 4096 I/O Points / Expandable / floating point arithmetic	
	CM1-XP3A	64Ksteps / 2048 I/O Points / Expandable / floating point arithmetic	
Power Supply Module	CM1-SPC	Input-AC 110-220V, Output-24V : 0.2A/15V : 0.5A/5V : 3A	
	CM1-SP2B	Input-DC 24V, Output-24V : 0.5A/15V : 0.5A/5V : 3.5A	
Base Rack	CM1-BS03/04/05/08/10/12A	Base rack with 03/04/05/08/10/12 slots	
DC Type Input Module	CM1-XD16A	16 Points / DC 24V Input / SINK & SRC / ON Voltage 19V / OFF Voltage 11V	
	CM1-XD32C	32 Points / DC 24V Input / SINK & SRC / ON Voltage 19V / OFF Voltage 11V	
	CM1-XD16B	16 Points / DC 24V Input / SINK & SRC / ON Voltage 15V / OFF Voltage 12V	
	CM1-XD32B	32 Points / DC 24V Input / SINK & SRC / ON Voltage 15V / OFF Voltage 12V	
AC Type Input Module	CM1-XA08A	08 Points / AC 220-240V / ON Voltage 160V / OFF Voltage 60V	
	CM1-XA08B	08 Points / AC 110V / ON Voltage 80V / OFF Voltage 30V	
I/O Module	CM1-XY16DR	08 Points / DC 24V : 8 Point / Relay Output / 2A	
Relay Output Module	CM1-YR16A	16 Points / Relay Output / 2A	
	CM1-YS08A	08 Points / SSR Output / 1A	
Transistor Output Module	CM1-YT16A/B	16 Points / TR - SINK / Source Output	
	CM1-YT32A/C	32 Points / TR - SINK / Source Output	
Analog Output Module	CM1-AD04VI	04 Channels / 14 bits / Current & Voltage Input	
	CM1-AD08V	08 Channels / 14 bits / Voltage Input	
	CM1-AD08I	08 Channels / 14 bits / Current Input	
Analog Input Module	CM1-DA04/08V	04/08 Channels / 14 bits / Voltage Output	
	CM1-DA04/08I	04/08 Channels / 14 bits / Current Output	
	CM1-DA04/08VA	04/08 Channels / 14 bits / Voltage/Current selectable Output	
RTD	CM1-RD04A	04 Channel, Pt100 / JPt100, 14 bit resolution	
TC	CM1-TC04A	04 Channel / Type K,J,E,T,B,R,S / 14 bit resolution	
Thermistor	CM1-TH08A	08 Channel / NTC Type / 0.1 Deg C resolution	
Load Cell	CM1-WG02A	02 Channel / Strain gauge	
High Speed	CM1-HS02B	2 Channel / 1/2 phase inputs / Signal-DC 5/12/24V, 5mA / 200kPPS / Open collector output	
Positioning	CM1-PS02A	2-axis / Linear / Arc interpolation / 1 MPPS / Line Driver Pulse output	
Data logger	CM1-LG32A	Real-time Sampling data / 32Mbytes / RS232C port / Async	
RS232C/RS422/RS485	CM1-SC02A	RS232C, RS422/485 / BCH-CIMON protocol / Async / MODBUS RTU	
	CM1-SC01A	RS232C / BCH-CIMON protocol / Async / MODBUS RTU	
	CM1-SC01B	RS422/485 / BCH-CIMON protocol / Async / MODBUS RTU	
Ethernet	CM1-EC01A	10Mbps, Base band / CSMA/CD / TCP/IP, UDP/IP	
Profibus DP	CM1-PD01A	Profibus DP Master / RS485 / I/O Data 512 Byte	

BP Series

Model	Power	Input			Output	Remarks	MRP Rs.
CM2-BP32MDTA*	AC 100-240V	16	DC 24V	16	TR SINK	* Indicates R : RS232C S : RS422/485 E : Ethernet (10M) U : RS422/485 2Ch T : RS232 1 Ch	18731
CM2-BP32MDCA*					TR SOURCE		18731
CM2-BP32MDRA*					RELAY		18731
CM2-BP32MDTD*	DC 24V				TR SINK		19140
CM2-BP32MDCD*					TR SOURCE		19140
CM2-BP32MDRD*					RELAY		19140
CM2-BP16MDTA*	AC 100-240V	8	DC 24V	7	TR SINK	* Indicates R : RS232C S : RS422/485	12725
CM2-BP16MDCA*					TR SOURCE		12725
CM2-BP16MDRA*					RELAY		12725
CM2-BP16MDTD*	DC 24V				TR SINK		12471
CM2-BP16MDCD*					TR SOURCE		12471
CM2-BP16MDRD*					RELAY		12220
CM2-BP16EDT	16 CH						10384
CM2-BP16EDC	16 CH						10384
CM2-BP16EDR	16 CH						10690

* Please refer catalogue for details

Human Machine Interface

Xpanel

Model	Specification	For prices please contact our nearest sales office
CM-XT05MB-A	5.6", 16 Gray, 320 x 240 Resistive, Monochrome display, 64MB SDRAM, RS232/Ethernet/USB host port	
CM-XT05MB-D		
CM-XT05SB-A	5.6", 256 Color, 320 x 240 Resistive, CSTN display, 64MB SDRAM, 32MB Flash memory, RS232/Ethernet/USB host port	
CM-XT05SB-D		
CM-XT07CB-A	7", 65536 Color, 800 x 480 Resistive, TFT Color display, 64MB SDRAM, 32MB Flash memory, RS232/Ethernet/USB host port	
CM-XT07CB-D		
CM-XT10CB-A	10.4", 65536 Color, 800 x 600 Resistive, TFT Color display, 64MB SDRAM, 32MB Flash memory, RS232/Ethernet/USB host port	
CM-XT12CB-A		

* A - AC Power Input - 90 - 240V AC

* D - DC Power Input - 24V DC

SCADA Software

Development System

Model	No. of Tags	Description	For prices please contact our nearest sales office
CM01-0075/DS	75 Tags	Development + Runtime + Keylock + Manual	
CM01-0150/DS	150 Tag	Development + Runtime + Keylock + Manual	
CM01-0500/DS	500 Tag	Development + Runtime + Keylock + Manual	
CM01-1500/DS	1500 Tag	Development + Runtime + Keylock + Manual	
CM01-FULL/DS	Unlimited Tag	Development + Runtime + Keylock + Manual	

Runtime System

Model	No. of Tags	Description	For prices please contact our nearest sales office
CM01-0075/RS	75 Tags	Runtime + Keylock	
CM01-0150/RS	150 Tag	Runtime + Keylock	
CM01-0500/RS	500 Tag	Runtime + Keylock	
CM01-1500/RS	1500 Tag	Runtime + Keylock	
CM01-FULL/RS	Unlimited Tag	Runtime + Keylock	

Web Version

Model	No. of Tags	Description	For prices please contact our nearest sales office
CM01-0002/WS	02 User	2 concurrent users (Including Full/DS)	
CM01-0005/WS	05 User	5 concurrent users (Including Full/DS)	
CM01-0010/WS	10 User	10 concurrent users (Including Full/DS)	
CM01-FULL/WS	Unlimited User	Unlimited concurrent users (Including Full/DS)	

Hard Key Selection

LPT	For Printer Port
USB	For USB Port

* Please refer catalogue for details

Programmable Logic RelayBCH

Programmable Logic Relay

Compact, Modular, Flexible, Economic and Capable
Surface mounting & DIN rail mounting
Controls 82 inputs/outputs including 8 analog inputs.
Output rating 10Amp for relay and 2Amp for transistor.
Programming through "SUPER CAD" FBD programming software or LCD programming panel.
Removable and separately installable LCD display panel.
Voice module offers auto telephone dialing and pre recorded alarms.
Industrial wireless remote control module offer 6 wireless remote control input points.
Three no. extension I/O can be used as distributed I/O up to max. 6 mtrs. in length

Product Description	Cat. Ref. No	MRP Rs.
100~240VAC 8 AC IN/4 R Out Control unit	SR-12MRAC	7075
100~240VAC 14 AC IN/8 R Out Control unit	SR-22MRAC	11150
100~240VAC 12 AC IN/8 R Out Expansion Unit	SR-20ERA	6110
12~24VDC 8 DC IN (A) /4 R Out Control unit	SR-12MRDC	7075
12~24VDC 14 DC IN (A) /8 R Out Control unit	SR-22MRDC	11710
12~24VDC 12 DC IN (A) /8 R Out Expansion Unit	SR-20ERD	5600
12~24VDC 14 DC IN (A) /8 TR PNP OUT	SR-22 MGDC	11150
12~24VDC 8 DC IN (A) /4 T Out Control unit	SR-12MTDC	7330
12~24VDC 14 DC IN (A) /8 T Out Control unit	SR-22MTDC	13030
12~24VDC 12 DC IN (A) /8 T Out Expansion Unit	SR-20ETD	5600
100~240VAC type receiver module	SR-RCA	9520
12~24VDC type receiver module	SR-RCD	9520
DC3V Transmitter module	SR-TC	3820
100~240VAC AC voice module	SR-VPA	8653
12~24 VDC DC voice module	SR-VPD	8653
Human Machine Interface (LCD panel)	SR-HMI-B	1603
Progammig cable - RS232-9 PIN D	SR-CP	1580
Progammig cable - USB	SR-DUSB	1934
AC Type remote Connecting bridge	SR-ECBA	692
DC Type remote Connecting bridge	SR-ECBD	692
Remote mounting rack for LCD panel	SR-EHC	865
Programming Panel	SR-WRT	1603
Recording cable	SR-AUD	178
Long connecting antenna of SR-RCA/SR-RCD	SR-EANT	2770



AC Drives BCH

SINUS N Drive



Rating (Kw)	Drive Series	Product Code	Supply Details	Remark	Current (A)	MRP Rs.
0.37	SINUS N	SINUS N 2S0001XBK2	Input - 1 phase 200 - 240V AC, Output - 3 phase, 240V AC	With EMC	2.5	9980
0.37	SINUS N	SINUS N 2S0001XIK2		W/o EMC	2.5	9470
0.75 - 1.1	SINUS N	SINUS N 2S0002XBK2		With EMC	5	11200
0.75 - 1.1	SINUS N	SINUS N 2S0002XIK2		W/o EMC	5	10690
1.5 - 1.8	SINUS N	SINUS N 2S0003XBK2		With EMC	8	15270
1.5 - 1.8	SINUS N	SINUS N 2S0003XIK2		W/o EMC	8	14761
2.2 - 3	SINUS N	SINUS N 2S0005XBK2		With EMC	12	17052
2.2 - 3	SINUS N	SINUS N 2S0005XIK2		W/o EMC	12	16290

SINUS M Drive



- 0.4~22Kw 380-480Vac, 3 phase
- Sensorless vector and V/F control
- Integrated braking module
- Build in PID function

Rating (Kw)	Drive Series	Product Code	Supply Details	Remark	Current (A)	MRP Rs.
0.37 - 0.55	SINUS M	SINUS M 4T0001BA2K2	Input - 3 phase 415V AC, Output - 3 phase, 415V AC	With EMC	1.25	18833
0.75 - 0.9	SINUS M	SINUS M 4T0002BA2K2		With EMC	2.50	19953
1.5	SINUS M	SINUS M 4T0003BA2K2		With EMC	4.00	22400
2.2	SINUS M	SINUS M 4T0005BA2K2		With EMC	6.00	24941
3.4	SINUS M	SINUS M 4T0007BA2K2		With EMC	9.00	31304
5.5	SINUS M	SINUS M 4T0011BA2K2		With EMC	12.00	39193
7.5	SINUS M	SINUS M 4T0014BA2K2		With EMC	16.00	46830
11	SINUS M	SINUS M 4T0017BA2K2		With EMC	24.00	For prices please contact our nearest sales office
15	SINUS M	SINUS M 4T0020BA2K2		With EMC	30.00	
18.5	SINUS M	SINUS M 4T0025BA2K2		With EMC	39.00	
22	SINUS M	SINUS M 4T0030BA2K2		With EMC	45.00	

*SINUS M available in 1 phase to 3 phase version also





Sinus Penta Drive

- 4.5 - 3000 KW, 3 Phase 380 - 415 VAC
- One Drive - Five functions
 - Vector modulation IFD functionality for general-purpose applications
 - Sensorless vector VTC functionality for high torque-demanding applications
 - Vector FOC functionality with an encoder for accurate torque requirements and a wide speed range
 - Vector SYN functionality for applications with brushless, synchronous motors
 - RGN functionality for the inverter application as an AC/DC converter for the DC supply of multiple drives
- In built Braking chopper upto 132KW rating (S30)
- Serial communication port RS485 – MODBUS RTU Protocol
- Starting Torque upto 240% max
- PID function / second PID function
- Control keypad panel with 12 keys and large back-lit LCD
- Intelligent cooling system
- Encoder feedback
- Full compatibility with teleservice software, "REMOTE DRIVE" on internet
- Compatible with Easy Harmonics, tool for the calculation of Harmonic currents

Drive Model				LIGHT			STANDARD			HEAVY			STRONG		
				Overload up to 120%			Overload up to 140%			Overload up to 175%			Overload up to 200%		
	Inom.	Imax.	Ipeak	Motor power 380 - 415 VAC			Motor power 380 - 415 VAC			Motor power 380 - 415 VAC			Motor power 380 - 415 VAC		
	A	A	A	kW	HP	A	kW	HP	A	kW	HP	A	kW	HP	A
SINUS P 0005	10.5	11.5	14	4.5	6	9	4	5.5	8.4	3	4	6.4	2.2	3	4.9
SINUS P 0007	12.5	13.5	16	5.5	7.5	11.2	4.5	6	9.0	4	5.5	8.4	3	4	6.4
SINUS P 0009	16.5	17.5	19	7.5	10	14.5	5.5	7.5	11.2	4.5	6	9	4	5.5	8.4
SINUS P 0011	16.5	21	25	7.5	10	14.8	7.5	10	14.8	5.5	7.5	11.2	4.5	6	9
SINUS P 0014	16.5	25	30	7.5	10	14.8	7.5	10	14.8	7.5	10	14.8	5.5	7.5	11.2
SINUS P 0016	27	30	36	11	15	21	9	12.5	18	9	12.5	18	7.5	10	15
SINUS P 0017	30	32	37	15	20	29	11	15	21	9	12.5	18	7.5	10	15
SINUS P 0020	30	36	43	15	20	29	15	20	29	11	15	21	9.2	12.5	18
SINUS P 0025	41	48	58	22	30	41	18.5	25	35	15	20	29	11	15	21
SINUS P 0030	41	56	67	22	30	41	22	30	41	18.5	25	35	15	20	29
SINUS P 0034	57	63	76	30	40	55	25	35	46	22	30	41	18.5	25	35
SINUS P 0036	60	72	86	30	40	55	30	40	55	25	35	46	22	30	41
SINUS P 0040	72	80	88	37	50	67	30	40	55	25	35	46	22	30	41
SINUS P 0049	80	96	115	45	60	80	37	50	67	30	40	55	25	35	46
SINUS P 0060	88	112	134	50	70	87	45	60	80	37	50	67	30	40	55
SINUS P 0067	103	118	142	55	75	98	55	75	98	45	60	80	32	45	59
SINUS P 0074	120	144	173	65	90	114	65	90	114	50	70	87	37	50	67
SINUS P 0086	135	155	186	75	100	133	75	100	133	55	75	98	45	60	80
SINUS P 0113	180	200	240	100	135	180	90	125	159	75	100	133	55	75	98
SINUS P 0129	195	215	258	110	150	191	100	135	180	80	110	144	65	90	114
SINUS P 0150	215	270	324	120	165	212	110	150	191	90	125	159	75	100	133
SINUS P 0162	240	290	324	132	180	228	132	180	228	110	150	191	90	125	159
SINUS P 0180	300	340	408	160	220	273	150	200	264	132	180	228	110	150	191
SINUS P 0202	345	420	504	200	270	341	160	220	273	160	220	273	132	180	228
SINUS P 0217	375	460	552	220	300	375	220	270	375	185	250	321	150	200	260
SINUS P 0260	425	560	672	250	340	425	250	340	425	220	300	375	185	250	321
SINUS P 0313	480	600	720	280	380	480	280	380	480	250	340	421	200	270	341
SINUS P 0367	550	680	792	315	430	528	315	430	528	280	380	480	220	300	375
SINUS P 0402	680	850	1020	400	550	680	400	550	680	355	485	589	280	380	480

For prices contact our nearest sales office.

Soft Starters BCH



ASAB Soft Starter

- 23A - 1600 A, 200V - 525V AC, 380V-690V AC
- 3 wire and 6 wire connection
- Allowed overload from 300%- 450% of nominal
- Various motor protections builtin
- 5/5 programmable I/Os
- Integrated Multimeter

Starting Functions

- Constant current start mode
- Current ramp start mode
- Torque control
- Kick start
- Inbuilt bypass contractor upto 220AMP

Protection Functions

- Thermal motor protection
- Motor thermistor input (PTC)
- Phase imbalance
- Phase sequence
- Electronic shearpin
- Undercurrent
- Shorted SCR
- ...and many more

Modello Model 200-525V	Size	Start per Hour	Bypassed ratings In-line connection				Start per Hour	Bypassed ratings In-line connection			
			300%, 10s Light Dty	350%, 15s	400%, 20s	450%, 30s Hvy Dty		300%, 10s Light Dty	350%, 15s	400%, 20s	450%, 30s Hvy Dty
			N° Amps	Amps	Amps	Amps		N° Amps	Amps	Amps	Amps
ASAB-0023B/5/12/2	G1 no fan	10	23	20	17	15	10	35	30	26	22
ASAB-0043B/5/12/2	G1 no fan	10	43	37	31	26	10	65	59	51	44
ASAB-0053B/5/12/2	G1 no fan	10	53	53	46	37	10	80	80	69	55
ASAB-0076B/5/12/2	G1 no fan	6	76	64	55	47	6	114	96	83	70
ASAB-0097B/5/12/2	G1	6	97	82	69	58	6	146	123	104	87
SAB-0100B/5/12/2	G1	6	100	88	74	61	6	150	132	112	92
ASAB-0105B/5/12/2	G1	6	105	105	95	78	6	158	158	143	117
ASAB-0145B/5/12/0	G2	6	145	123	106	90	6	218	184	159	136
ASAB-0170B/5/12/0	G2	6	170	145	121	97	6	255	217	181	146
ASAB-0200B/5/12/0	G2	6	200	189	160	134	6	300	283	241	200
ASAB-0220B/5/12/0	G2	6	220	210	178	148	6	330	315	268	223
Non Bypassed Ratings In-line connection											
ASAB-0255C/5/12/0	G3	6	255	231	201	176	6	383	346	302	264
ASAB-0380C/5/12/0	G4	6	380	380	359	299	6	570	570	539	449
ASAB-0430C/5/12/0	G4	6	430	430	368	309	6	645	645	552	464
ASAB-0620C/5/12/0	G4	6	620	620	540	434	6	930	930	810	651
ASAB-0650C/5/12/0	G4	6	650	650	561	455	6	975	975	842	683
ASAB-0790C/5/12/0	G4	6	790	790	714	579	6	1185	1185	1071	868
ASAB-0930C/5/12/0	G4	6	930	930	829	661	6	1395	1395	1244	992
ASAB-1200C/5/12/0	G5	6	1200	1200	1200	1071	6	1800	1800	1800	1606
ASAB-1410C/5/12/0	G5	6	1410	1410	1319	1114	6	2115	2115	1979	1671
ASAB-1600C/5/12/0	G5	6	1600	1600	1600	1353	6	2400	2400	2400	2030

* To complete cat code suffix : 7 - for 380 - 690V AC. For Price List of suffix 7 pl. contact our sales office.

* For the prices of above mentioned products please contact our nearest sales office.



ASAC Series Soft-Starter

BIL Product Reference	Motor Rating Kw	MRP Rs.	Remark
200 - 440 VAC, IP:20			Without Motor Protections & Inbuilt Bypass contactor.
ASAC-0/007/4/1	7.5	26315	
ASAC-0/015/4/1	15	27893	
ASAC-0/018/4/1	18.5	28890	
ASAC-0/022/4/1	22	34052	
ASAC-0/030/4/1	30	38430	
ASAC-0/037/4/1	37	44030	
ASAC-0/045/4/1	45	50090	
ASAC-0/055/4/1	55	54770	
ASAC-0/075/4/1	75	74314	
ASAC-0/090/4/1	90	81084	
ASAC-0/110/4/1	110	89024	
200 - 440 VAC, IP:20			With Motor Protections & Inbuilt Bypass contactor.
ASAC-1/007/4/1	7.5	38073	
ASAC-1/015/4/1	15	44130	
ASAC-1/018/4/1	18.5	46472	
ASAC-1/022/4/1	22	49630	
ASAC-1/030/4/1	30	55330	
ASAC-1/037/4/1	37	60370	
ASAC-1/045/4/1	45	72790	
ASAC-1/055/4/1	55	79610	
ASAC-1/075/4/1	75	93100	
ASAC-1/090/4/1	90	116561	
ASAC-1/110/4/1	110	129795	

- Power supply voltage Range: 200-440VAC
- RS-485 Communication Port
- Compact size & Range 7.5KW - 110KW
- Internal By-pass contactor
- 400% Max allowed overload of nominal current.
- Full Compatibility with teleservice software "Remote Drive" on internet

Protection Functions

- Motor Overload
- Phase loss
- Excess start Time
- Phase Sequence
- Motor thermistor I/P
- Power circuit fault
- Supply Frequency
- Communication Failure

Soft Starters & DC DrivesBCH



Medium Voltage Soft-Starter

- Power supply 2300VAC to 15000VAC, Rated current 200A to 600A
- 3 types of motor starting (Constant Current, Current Ramp, Torque Control)
- Allowed overload 600% of nominal current
- Class A EMC
- Operating temperature 0 to 50 deg
- Protections: Under / Overvoltage, Supply Frequency, Phase sequence,
- Shorted SCR, Motor Overload, Ground Fault, Undercurrent, Current Imbalance etc
- 5 Remote control inputs (3 Fixed & 2 Programmable)
- 6 Relay Outputs
- Analog output (1 Programmable)
- Serial output (RS-485 Modbus -RTU)

Digital DC Drives



- From 10A to 4500A (2.4 KW to 2205 KW)
3 Phase 220-690VAC
- 2 & 4 Quadrant digital drive
- Local control from keypad
- 12/7 programmable I/Os
- Predictive control and field boost
- Feedback from dynamo/encoder/armature
- Auto switching in armature F/B against
encoder/tacho feed back failure

Digital DC Drives

Cat. No.	Armature Current (A)	Field Current (A)
DCREG*.10 POT440V	10	5
DCREG*.20 POT440V	20	5
DCREG*.40 POT440V	40	5
DCREG*.70 POT440V	70	5
DCREG*.100 POT440V	100	5
DCREG*.150 POT440V	150	15
DCREG*.180 POT440V	180	15
DCREG*.250 POT440V	250	15
DCREG*.350 POT440V	350	15
DCREG*.410 POT440V	410	35
DCREG*.500 POT440V	500	35
DCREG*.600 POT440V	600	35
DCREG*.900 POT440V	900	35
DCREG*.1200 POT440V	1200	35

* to complete cat code suffix : 2- for II Quadrant drive 4 - for IV Quadrant drive
For above 1200 Amp rating details contact our nearest sales office.

For prices contact our nearest sales office.



- Sizes from 8mm to 30mm Dia
- Switching Distance from 1.5mm to 15mm
- IP 67, CE Marked
- Sensors with Linear output (4 - 20 mA/0-10VDC)

General Specifications

- High switching capacity
- 200mA upto 12mm Dia
- 400mA for 18mm and 30mm Dia
- Wide range of outputs
- Voltages AC/DC
- Status LED Indication
- Built in Short circuit protection

Special Versions

- Non Standard sizes from 4mm to 80mm dia
- High temperature sensors upto 125 Deg C
- Square / Slot / Rectangular sensors
- Sensor with shielded cable

@PROX Range

Standard Version of Inductive Proximity Switches

Cat. No.	Dia (mm)	Nominal Sn Distance (mm)	Output	Max. Load (mA)	MRP Rs.	Lot Size
Flush Version Nominal Voltage 12-30V DC 3 Wire Output LED Indication Integrated cable 3C/2M						
DINE8SP10	8	1.5	PNP-NO	100	861	10
DINE8SN10	8	1.5	NPN-NO	100	861	
DINE12SP10	12	2	PNP-NO	200	690	
DINE12SN10	12	2	NPN-NO	200	690	
DINE18SP10	18	5	PNP-NO	400	730	
DINE18SN10	18	5	NPN-NO	400	730	
DINE30SP10	30	10	PNP-NO	400	895	
DINE30SN10	30	10	NPN-NO	400	895	
Non Flush Version Nominal Voltage 12-30V DC 3 Wire Output LED Indication Integrated cable 3C/2M						
DINE8NP10	8	2	PNP-NO	100	861	10
DINE8NN10	8	2	NPN-NO	100	861	
DINE12NP10	12	4	PNP-NO	200	690	
DINE12NN10	12	4	NPN-NO	200	690	
DINE18NP10	18	8	PNP-NO	400	730	
DINE18NN10	18	8	NPN-NO	400	730	
DINE30NP10	30	15	PNP-NO	400	895	
DINE30NN10	30	15	NPN-NO	400	895	
Flush Version Nominal Voltage 240V AC* 2 Wire Output LED Indication Integrated cable 3C/2M						
DINE12SA10	12	2	NO	200	850	10
DINE12SA01	12	2	NC	200	850	
DINE18SA10	18	5	NO	400	861	
DINE18SA01	18	5	NC	400	861	
DINE30SA10	30	10	NO	400	1025	
DINE30SA01	30	10	NC	400	1025	
Non Flush Version Nominal Voltage 240V AC* 2 Wire Output LED Indication Integrated cable 3C/2M						
DINE12NA10	12	4	NO	200	850	10
DINE12NA01	12	4	NC	200	850	
DINE18NA10	18	8	NO	400	861	
DINE18NA01	18	8	NC	400	861	
DINE30NA10	30	15	NO	400	1025	
DINE30NA01	30	15	NC	400	1025	

*110V AC input voltage is also available



Capacitive Proximity Switches



- Sizes: 18mm and 30mm dia
- Switching Distance: upto 15mm
- IP 67, CE Compliance

General Specifications

- Max. load current : 400mA
- Wide range of outputs
- Built in Short circuit & polarity reversal protection
- Sensitivity adjustment thru trimmer

Cat. No.	Dia (mm)	Nominal Sn Distance (mm)	Output	Max. Load (mA)	MRP Rs.	Lot Size
Flush Version 12-30V DC 3 Wire Output LED Indication Integrated 3C/2M						
DCAE18SN10	18	1 to 5	NPN-NO	400	1801	10
DCAE18SP10	18	1 to 5	PNP-NO	400	1801	
DCAE30SN10	30	1 to 10	NPN-NO	400	2072	
DCAE30SP10	30	1 to 10	PNP-NO	400	2072	
Non Flush Version 12-30V DC 3 Wire Output LED Indication Integrated 3C/2M						
DCAE18NN10	18	2 to 10	NPN-NO	400	1801	10
DCAE18NP10	18	2 to 10	PNP-NO	400	1801	
DCAE30NN10	30	3 to 15	NPN-NO	400	2072	
DCAE30NP10	30	3 to 15	PNP-NO	400	2072	

Photoelectric Sensors



- Size : M18 cylindrical
- Mode : diffuse, retro and thru beam
- LED indication
- Sensing distance 20cm to 5mtr.

Special Versions

- Sensors in Rectangular housing

Cat. No.	Dia (mm)	Nominal Sn Distance (mm)	Output	Max. Load (mA)	MRP Rs.
Nominal Voltage : 12-30V DC Diffuse Scan DC 4-W Output LED Indication Prewired with 2 m Cable					
DPHE18D2N11	18	200	NPN-NO+NC	200	2623
DPHE18D2P11	18	200	PNP-NO+NC	200	2623
Nominal Voltage : 12-30V DC Retro Reflective DC 4-W Output LED Indication Prewired with 2 m Cable					
DPHE18RRN11	18	1000	NPN-NO+NC	200	2623
DPHE18RRP11	18	1000	PNP-NO+NC	200	2623
Nominal Voltage : 12-30V DC Through Beam DC 4-W Output LED Indication Prewired with 2 m Cable					
DPHE18TBRP11	18	5000	PNP-NO+NC	200	3400
DPHE18TBRN11	18	5000	NPN-NO+NC	200	3400

Note :

- Prices for Thru Beam, Photo Sensors are inclusive of emitters & receivers.
- Prices for Retro Reflective Sensors are inclusive of reflectors.



Standard Version of Inductive Proximity Switches

Cat. No.	Dia (mm)	Nominal Sn Distance (mm)	Output	Connector Size	MRP Rs.	Lot Size
Flush Version Nominal Voltage 12-30V DC 3 Wire Output LED Indication, 200 mA Load upto 12mm & 400 mA for 18 mm						
DINE8SP10K	8	1.5	PNP-NO	M8 Connector	910	10
DINE8SN10K	8	1.5	NPN-NO	M8 Connector	910	
DINE12SP10K	12	2	PNP-NO	M12 Connector	910	
DINE12SN10K	12	2	NPN-NO	M12 Connector	910	
DINE18SP10K	18	5	PNP-NO	M12 Connector	910	
DINE18SN10K	18	5	NPN-NO	M12 Connector	910	
DINE30SP10K	30	10	PNP-NO	M12 Connector	1003	
DINE30SN10K	30	10	NPN-NO	M12 Connector	1003	
Non Flush Version Nominal Voltage 12-30V DC 3 Wire Output LED Indication						
DINE8NP10K	8	2	PNP-NO	M8 Connector	910	10
DINE8NN10K	8	2	NPN-NO	M8 Connector	910	
DINE12NP10K	12	4	PNP-NO	M12 Connector	910	
DINE12NN10K	12	4	NPN-NO	M12 Connector	910	
DINE18NP10K	18	8	PNP-NO	M12 Connector	910	
DINE18NN10K	18	8	NPN-NO	M12 Connector	910	
DINE30NP10K	30	15	PNP-NO	M12 Connector	1003	
DINE30NN10K	30	15	NPN-NO	M12 Connector	1003	
Cat. No.	Description Female Connectors				MRP Rs.	
DM8K3	M8 3-Wire straight connector w/o LED & 2 m cable				390	10
DM8K390LE	M8 3-Wire "L" type connector with LED & 2 m cable				485	
DM12K4	M12 4-Wire straight connector w/o LED & 2 m cable				423	
DM12K490	M12 4-Wire "L" type connector w/o LED & 2 m cable				570	
DM12K490LE	M12 4-Wire "L" type connector with LED & 2 m cable				585	
Linear Output Inductive Proximity Sensor - Nominal Voltage 24V DC, 2m Integrated Cable						
DINE18LIN	18	5	0 - 10V	2 m long PVC Cable	1553	10
DINE18LINMA	18	5	4 - 20 mA		1553	

Standard Version DC 2 Wire Proximity Switches

Cat. No.	Dia (mm)	Nominal Sensing Distance (mm)	Output	Max. Load (mA)	MRP Rs.	Lot Size
Flush Version Nominal Voltage 24V DC 2 Wire Output LED Indication, Integrated 3C/2m long PVC Cable 65mm long tubular Metallic Housing						
DINE8SD10	8	1.5	NO	200	1064	10
DINE12SD10	12	2	NO	200	730	
DINE18SD10	18	5	NO	400	771	
DINE30SD10	30	10	NO	400	1003	
Non Flush Version, Nominal Voltage 12-30V DC 2 Wire Output LED Indication, Integrated 3C/2m long PVC Cable 65mm long tubular Metallic Housing						
DINE8ND10	8	2	NO	200	1064	10
DINE12ND10	12	4	NO	200	730	
DINE18ND10	18	8	NO	400	771	
DINE30ND10	30	15	NO	400	1003	

Note : for NC output, replace suffix 10 by 01



Short Housing Inductive Proximity Switch-45mm length

Cat. No.	Dia (mm)	Nominal Sensing Distance (mm)	Output	Max. Load (mA)	MRP Rs.	Lot Size
Flush Version Nominal Voltage 12-30V DC, 3 Wire Output, LED Indication, Integrated 3C/2m long PVC Cable						
45mm long tubular Metallic Housing						
DINE8SP10S	8	1.5	PNP-NO	200	1103	10
DINE8SN10S	8	1.5	NPN-NO	200	1103	
DINE12SP10S	12	2	PNP-NO	200	743	
DINE12SN10S	12	2	NPN-NO	200	743	
DINE18SP10S	18	5	PNP-NO	400	771	
DINE18SN10S	18	5	NPN-NO	400	771	
Non Flush Version, Nominal Voltage 12-30V DC, 3 Wire Output, LED Indication, Integrated 3C/2m long PVC Cable						
45mm long tubular Metallic Housing						
DINE8NP10S	8	2	PNP-NO	200	1103	10
DINE8NN10S	8	2	NPN-NO	200	1103	
DINE12NP10S	12	4	PNP-NO	200	743	
DINE12NN10S	12	4	NPN-NO	200	743	
DINE18NP10S	18	8	PNP-NO	400	780	
DINE18NN10S	18	8	NPN-NO	400	780	

Square / Rectangular Proximity Switch

Cat. No.*	Size (mm)	Nominal Sensing Distance (mm)	Output	Max. Load (mA)	MRP Rs.	Lot Size
Flush Version, Nominal Voltage 12-30V DC, 3 Wire Output, LED Indication, Integrated 3C/2m long PVC Cable, Plastic Housing						
DINE1717SP10P	17x17x30	5	PNP-NO	200	780	10
DINE2020SN10P	20x20x38	5	PNP-NO	200	780	
DINE5025SP10P	50x25x10	5	PNP-NO	200	780	
DINE1717SN10P	17x17x30	5	NPN-NO	200	780	
DINE2020SP10P	20x20x38	5	NPN-NO	200	780	
DINE5025SN10P	50x25x10	5	NPN-NO	200	780	

High Ambient Temperature (up to 125°C) Proximity Switch

Cat. No.*	Size (mm)	Nominal Sensing Distance (mm)	Output	Max. Load (mA)	MRP Rs.	Lot Size
Flush/Non Flush Version, Nominal Voltage 230V AC, 2 Wire Output, LED Indication, Integrated 3C/2m long Cable, SS Housing						
DINE30SA10HT **	30	4	NO	200	2995	10
DINE30NA10HT **	30	6	NO	200	2983	
DINE18SA10HT **	18	2	NO	200	2753	
DINE18NA10HT **	18	3	NO	200	2752	

* For NC Output, Replace Suffix 10 by 01

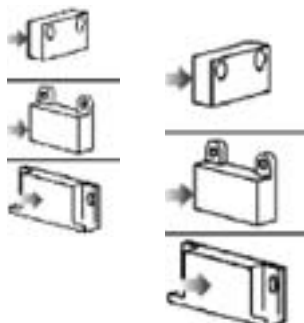
** For 110V AC input, Replace A by 2A

Magnetic Sensors

Cat. No.	Description	Output	MRP Rs.
DMA6RC10	Metal 30mm Length	NO	440
DMA6RC11		NO+NC	660
DMA8RC10		NO	620
DMA8RC11		NO+NC	850
DMA10RC10		NO	620
DMA10RC11		NO+NC	850
DMA12RC10	Metal 40mm Length	NO	650
DMA12RC11		NO+NC	881
DMA12RC10W		NO	660
DMA12RC10WL	Metal 70mm Length	NO	1161
DMA12RC11WL		NO+NC	1374
DMA18RC10W		NO	1232
DMA18RC11W		NO+NC	1435
DMA12RC10P	Plastic 100mm Length	NO	764
DMA12RC11P		NO+NC	1161
DMA12RC10WP		NO	950

For our specialised range of Sensors, please contact our sales offices.

- Reed Contact Magnetic sensors
- Voltage :230VAC
- Integrated 2 m Cable



Plug in Relays BCH

Universal Relays



- Type ARPU
- 10 Amp (Res) Contact rating
- 2 Change over / 3 Change over
- Silver Nickle Contacts
- Built in Mechanical Indicator/ Latching facility
- Wide Coil Voltages
- With and without LED
- 8 Pin / 11 Pin Socket

Built-in Mechanical Indicator



Built-in Latching facility

Socket & Clamp

35 mm DIN rail mounting Rating : 10A, 250V



Plug In Relays - Universal

Cat. No.	Coil Voltage	Contacts	MRP Rs.	Lot Size
8 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever				
ARPU2 12D	12 V DC	2 C/O	415	10
ARPU2 24D *	24V DC		415	
ARPU2 48D	48V DC		415	
ARPU2 110D	110V DC		415	
ARPU2 24A	24V AC		435	
ARPU2 48A	48V AC		435	
ARPU2 110A*	110V AC		435	
ARPU2 230A*	230V AC		447	
8 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever				
ARPU2 12D LE	12 V DC	2 C/O	447	10
ARPU2 24D LE	24V DC		435	
ARPU2 48D LE	48V DC		447	
ARPU2 110D LE	110V DC		447	
ARPU2 24ALE	24V AC		473	
ARPU2 48ALE	48V AC		473	
ARPU2 110ALE	110V AC		473	
ARPU2 230ALE	230V AC		473	
11 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever				
ARPU3 12D	12 V DC	3 C/O	447	10
ARPU3 24D*	24V DC		447	
ARPU3 48D	48V DC		447	
ARPU3 110D	110V DC		447	
ARPU3 24A	24V AC		473	
ARPU3 48A	48V AC		473	
ARPU3 110A*	110V AC		473	
ARPU3 230A*	230V AC		473	
11 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever				
ARPU3 12D LE	12 V DC	3 C/O	473	10
ARPU3 24D LE*	24V DC		473	
ARPU3 48D LE	48V DC		473	
ARPU3 110D LE	110V DC		473	
ARPU3 24ALE	24V AC		500	
ARPU3 48ALE	48V AC		500	
ARPU3 110ALE *	110V AC		500	
ARPU3 230ALE*	230V AC		531	

Sockets

Cat. No.	Type	MRP Rs.	Lot Size
10A, 250V AC, Screw Terminals, 35mm DIN Rail Mounting			
ARSU 11 *	11 Pin Socket	186	10
ARSU 8 *	8 Pin Socket	170	
ARPUCL *	Holding Clamp	21	

* Normal Stock Items : Subject to availability

Plug in Relays BCH

MINIATURE PLUG IN RELAYS



- Type ARPM
- 5 Amp. (Res.) Contact rating
- 2 Change over / 4 Change over
- Silver Nickle Contacts
- Built in Mechanical Indicator/Latching facility
- Wide Coil Voltages
- 8 Pin / 14 Pin Socket



Socket & Clamp ARSM

35 mm DIN rail mounting
Rating : 6A, 300V



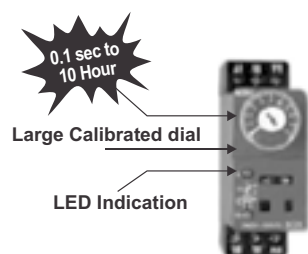
Plug in Relays - Miniature

Cat. No.	Coil Voltage	Contacts	MRP Rs.	Lot Size
14 Pin, Contact rating = 5A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever				
ARPM4 12D	12 V DC	4 C/O	271	10
ARPM4 24D *	24V DC		230	
ARPM4 48D	48V DC		286	
ARPM4 110D	110V DC		286	
ARPM4 24A	24VAC		286	
ARPM4 48A	48VAC		286	
ARPM4 110A *	110VAC		261	
ARPM4 230A*	230V AC		281	
14 Pin, Contact rating = 5A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever				
ARPM4 12D LE	12 V DC	4 C/O	301	10
ARPM4 24D LE *	24V DC		271	
ARPM4 48D LE	48V DC		320	
ARPM4 110D LE	110V DC		320	
ARPM4 24A LE	24VAC		320	
ARPM4 48A LE	48VAC		320	
ARPM4 110A LE *	110VAC		301	
ARPM4 230A LE *	230VAC		301	
8 Pin, Contact rating = 5A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever				
ARPM2 12D	12 V DC	2 C/O	266	10
ARPM2 24D *	24V DC		220	
ARPM2 48D	48V DC		266	
ARPM2 110D	110V DC		266	
ARPM2 24A	24VAC		266	
ARPM2 48A	48VAC		266	
ARPM2 110A *	110VAC		240	
ARPM2 230A*	230VAC		266	
8 Pin, Contact rating = 5A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever				
ARPM2 12D LE	12 V DC	2 C/O	291	10
ARPM2 24D LE*	24V DC		266	
ARPM2 48D LE	48V DC		301	
ARPM2 110D LE	110V DC		301	
ARPM2 24A LE	24VAC		301	
ARPM2 48A LE	48VAC		301	
ARPM2 110A LE*	110VAC		286	
ARPM2 230A LE*	230V AC		291	

Sockets

Cat. No.	Type	MRP Rs.	Lot Size
Screw Terminals, 35mm DIN Rail Mounting			
ARSM 14*	14 Pin Socket	163	10
ARSM 8 *	8 Pin Socket	123	
ARPMCL*	Holding Clamp	19	

* Normal Stock Items : Subject to availability



- On Delay
- Off Delay
- Cyclic
- Multifunction
- Star Delta
- Special version for Compressor application
- AC / DC Supply
- Widest timing range from 0.1 sec to 10 Hours in Single Unit
- Calibrated time scale for easy time setting
- DIN rail mounting
- Excellent repeat accuracy

Electronic Timers

Description	Cat.No.	MRP Rs.
Timer Encapsulated on delay Timer Type SAS-P (Solid State output) Voltages : 240V AC, 110V AC, 48V AC/DC, 24V AC/DC Time Range : 1 sec. or 0.1-10 Sec. or 1-100 Sec., or 3-300 Sec.	SST00 ■ 0-	865
Encapsulated on delay timer type SAS-CB (Solid State output) (Compressor/Heat pump) Voltages : 240V AC, 110V AC, 48V AC/DC, 24V AC/DC Time Range : 180 Sec. fixed	SST02 ■ 00	865
Chronos Delay on make type BAR 0.1 Sec. - 10 Hrs. 240V AC; 24V AC/DC or 110V AC; 24V AC/DC or 12V DC	SBT00 ■ 00	1465
Delay on break type BCR 0.1 Sec. - 10 Hrs. 240V AC; 24V AC/DC or 110V AC; 24V AC/DC or 12V DC	SBT01 ■ 00	1630
Recycling type BDR 0.1 Sec. - 10 Hrs. 240V AC; 24V AC/DC or 110V AC; 24V AC/DC	SBT02 ■ 00	2333
Multifunction type BLR 0.1 Sec. - 10 Hrs. 240V AC; 24V AC/DC or 110V AC; 24V AC/DC	SBT03 ■ 00	1693
Star-Delta Timer Type DQR-0.2-20 Sec./1-100 Sec.; 415/240, 110V: AC	SDT00 ■ 0-	1515

- Voltage Code
- Timing Range for Star-Delta Timers & SAS Timer

Voltage Codes

Type	Voltage	Voltage Code
B	240V AC; 24 V AC/DC	1
	110 V AC; 24 V AC/DC	2
	12 V DC	5
D	240 V AC	1
	415 V/240 V AC	0
	110 V AC	2
SAS	240V AC	1
	110V AC	2
	48V AC/DC	3
	24V AC/DC	4

Timing Code

Type	Timing	Code
DQR (Star Delta Timer)	20 Sec.	0
	40 Sec.	1
	100 Sec.	2
SAS	1 Sec.	0
	10 Sec.	1
	100 Sec.	2
	300 Sec.	3

Electronic Timers BCH

On Delay



- Fixed Voltage, Fixed Time
- Wide range of input supply - 220VAC; 110VAC; 24V AC/DC
- Large calibrated dial for easy and accurate time setting
- LED indications for Input supply and Output status
- Surface mounting & DIN rail mounting
- 1 changeover relay output (SPDT)
- All Purpose On Delay timer

Multi Function



- 4 Functions - On delay, Interval, Off delay, Single Shot
- Multi Time Range - Sec / Min / Hr
- Universal Voltage - 24 V- 230VAC/DC
- Large calibrated dial for easy and accurate time setting
- Compact Design
- LED indications for Input supply and Output status
- Surface mounting & DIN rail mounting
- 1 changeover relay output (SPDT)
- All Purpose Timer



- Selectable Counter, Chronometer or Timer functions.
- Up Counter, Down Counter, Up / Down Counter
- Up Chronometer, Down Chronometer
- Timer with On Delay, Interval, Off Delay, Single Shot and Cyclic Functions.
- Two presets with SPDT relays & solid state open collector
- Selectable Decimal Point
- EEPROM Data back-up
- 7 Segment 6 digit High LCD Display

IBT Electronic Timer

Fixed Voltage; Fixed Time Range - IBTA

Cat Ref.	Time Range	Function	Voltage	MRP Rs.
IBT00101	0.6-6 Sec	On Delay	240V AC	840
IBT00201	0.6-6 Sec	On Delay	110V AC	840
IBT00301	0.6-6 Sec	On Delay	24V AC/DC	840
IBT00401	0.6-6 Sec	On Delay	12V DC	840
IBT00102	3-30 Sec	On Delay	240V AC	840
IBT00202	3-30 Sec	On Delay	110V AC	840
IBT00302	3-30 Sec	On Delay	24V AC/DC	840
IBT00402	3-30 Sec	On Delay	12V DC	840
IBT00103	6-60 Sec	On Delay	240V AC	840
IBT00203	6-60 Sec	On Delay	110V AC	840
IBT00303	6-60 Sec	On Delay	24 V AC/DC	840
IBT00403	6-60 Sec	On Delay	12V DC	840
IBT00104	18-180 Sec	On Delay	240V AC	840
IBT00204	18-180 Sec	On Delay	110V AC	840
IBT 00304	18-180 Sec.	On Delay	24 V AC/DC	840
IBT00404	18-180 Sec.	On Delay	12V DC	840

Universal Voltage, Multi Time, Multi Function - IBTMU

Cat Ref.	Time Range	Function	Voltage	MRP Rs.
IBT04500	0.1S - 10 Hr.	On Delay, Off Delay, Interval, Single Shot	24-240V AC/DC	1590



Programmable Counter / Timer - IBC

Voltage	Description	Cat No.	MRP Rs
115/230 VAC	Counting Range:0-999999 Counter: Up,Down,Up/Down Timer : A-On delay,B-Single shot C-Off delay,H-Interval D-Cycling timer Chronometer: Up,Down	IBC00100	3665
12/24 VDC	Counting Range:0-999999 Counter: Up,Down,Up/Down Timer : A-On delay,B-Single shot C-Off delay,H-Interval D-Cycling time Chronometer: Up,Down	IBC00200	3563

Custom Built Products

- **MCC & PCC**
- **Crane Control Panels**
- **Punch Grid Resistors & Panels, NGR & DBR**
- **Special Purpose Starters**
- **Power Receptacles**
- **Auto Transformer Starters**



Motor Control Centres (MCC) Power Control Centres (PCC)



BCH MCC & PCC

- Latest Design Concepts & Manufacturing Process.
- Form 3b for Standard MCC & PCC Construction.
- Unique Techno Modular Construction with CRCA Sheet Steel.
- Fully Compartmentalized.
- Suitable for Indoor Installations.
- Fixed Type - Single / Double Front Execution.
- Draw Out Type - Single Front / Double Front Execution .
- PU Foam gasket - Temperature withstand capability -40°C to +120°C.
- 10 Tank spray based tricationic phosphating treatment - unique in Industry.
- Powder Coating with RAL7032 or user specified structure finish for enclosures.
- RAL 2000 finish or galvanized mounting plate options.
- IP: 54 & IP: 55 offer as per IS: 13947.
- Up-to 4000A, 50KA Horizontal bus bars with E91E grade Aluminium / Copper bus bars.
- Aluminium E91E grade Vertical bus bars / higher ratings with electrolytic grade copper bus bars.
- Short Circuit withstand capability tested at CPRI - busbar system suitable for 50KA for 1 sec. & 105KA peak.
- All tailor made solutions on request & based on specific enquiries. Contact nearest branch location for detailed proposal as per exact requirement.

Crane Control Panels BCH



AC Crane Control Bridge and Trolley Motion

This controller provides reversing and plugging operation of slip ring induction motors in heavy duty cranes on Trolley services. Upto 5 motor speeds are achieved in conjunction with a master controller.



Design Features

- Simplified reliable circuitary
- Inverse Time delay Magnetic Overload protection
- Time Limit acceleration
- Speed Control by series resistors
- No Volt protection
- Special Unique plugging circuit with a voltage relay
- CRCA Sheet steel construction of the panel.
- 7 Tank pretreated panels for extremely long life
- Panels for indoor and outdoor protection

AC Crane Control Hoisting Motion

- Plain rotor resistance
- AC Single phase dynamic braking
- Counter torque lowering
- Opotor Control
- Creep Speed



DC Crane Control Hoisting Motion

This control is for use with series wound motors drive for crane hoists and is arranged for reversing and dynamic lowering service. control



Design Features

- Simplified reliable circuitary
- Inductive time limit acceleration on hoisting & lowering
- Better speed control on light or heavy loads when hoisting or lowering
- CRCA Sheet steel construction of the panel.
- 7 Tank pretreated panels for extremely long life

DC Crane Control (Bridge and Trolley motion)

This controller provides reversing and plugging operation of series wound motors in heavy duty cranes on Trolley services. Upto 5 motor speeds are achieved in conjunction with a master controller.

Design Features

- Simplified, reliable circuitary
- Rectifier controlled plugging
- Instantaneous and Inverse time delay magnetic overload protection
- No volt protection
- Heavy duty DC Contactors equipped with magnetic blowouts
- CRCA Sheet steel construction of the panel.
- 7 Tank pretreated panels for extremely long life

Resistors & Starters.....BCH

Punched Grid Resistors



Range & Specifications

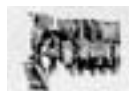
- Speed Control Resistors
- Starting Resistors for AC and DC Motors
- Dynamic Braking Resistors
- Neutral Grounding Resistors (upto 11KV)

Features

- Special Chromiun Steel Alloy (AISI406) for :
 - a) Higher resistivity (approx 70% higher than others)
This results in overall light and compact unit
 - b) Low temperature coefficient (approx 72% lower than others)
This means negligible change in resistance values despite grid temperature variations (very important parameter in applications like crane controls)



Unbreakable and corrosion free Grids . Suitable for extreme vibration conditions



Drawout type of banks for ease of removal while replacements



Three rod construction for higher mechanical strength

We also manufacture NGRs & DBRs

Special Purpose Starters

- Direct ON Line Starters upto 500 HP
- Star Delta Starters upto 650 HP
- Closed Transition Star Delta Starters upto 650 HP
- Automatic Stator Rotor Starting Panels upto 1000 HP
- DC starter upto 600A

PGRs are 10 minutes rated integrating period :10 minutes temp. rise : 375 deg over ambient

Type	Resistance Per Bank Ohms	Continuous Rating Amps
WL10	0.1	225
W12	0.125	200
WL20	0.2	150
WL25	0.25	134
WL32	0.32	118
WL40	0.4	113
WL50	0.5	100
WL62	0.62	84
WL80	0.8	75
WL100	1	67
WL125	1.25	64
WL160	1.6	57
WL200	2	54
WL250	2.5	48
WL320	3.2	43
WL400	4	40
WL500	5	35
WL625	6.25	33
WL800	8	29
WL1200	12	24
WL1600	16	20



Individual grids are T.I.G. welded for consistent current path



Unique design using staggered grid pattern ensuring maximum air circulation



Terminal designed for 2 types of conductors ensuring flexibility



Power Receptacles.....BCH

Power Receptacles

Range

- Single / Multiple outlet boxes
- 16/32/63/125A rating
- With or without protection
- Option of back up protection with :
 - MCBs
 - SDFUs
 - MCCBs
- Modular and compact construction
- Loop in Loop out facility
- Higher degree of Ingress Protection
- 7 Tank processed powder coated enclosure
- PU Gasketing for excellent sealing against dust and water



Plugs and Socket outlets with / without protection, mounted in CRCA enclosure of suitable size

Single Outlet	Incomer (1 No.)			Standard Version Cat reference	Loop in loop out version Cat reference
	Switch Type	MCCB Type	MCB		
1 No DS1A7A1 and 1 No. DS1B7A1	FS0N + Neutral Link	-	-	PR16SDF-1	PR16SDF-1-LILO
1 No DS1A7A1 and 1 No. DS1B7A1	-	-	16A,TPN	PR16MCB-1	PR16MCB-1-LILO
1 No DS1A7A1 and 1 No. DS1B7A1	-	-	-	PR16WP-1	PR16WP-1-LILO
1 No DS3A7A1 and 1 No. DS3B7A1	FS0N + Neutral Link	-	-	PR32SDF-1	PR32SDF-1-LILO
1 No DS3A7A1 and 1 No. DS3B7A1	-	-	32A,TPN	PR32MCB-1	PR32MCB-1-LILO
1 No DS3A7A1 and 1 No. DS3B7A1	-	-	-	PR32WP-1	PR32WP-1-LILO
1 No DS6A7A1 and 1 No. DS6B7A1	FS1N + Neutral Link	-	-	PR63SDF-1	PR63SDF-1-LILO
1 No DS6A7A1 and 1 No. DS6B7A1	-	X1B3F60K00 + separate Neutral Link + Rotary Handle	-	PR63MCCB-1	PR63MCCB-1-LILO
1 No DS6A7A1 and 1 No. DS6B7A1	-	-	63A,TPN	PR63MCB-1	PR63MCB-1-LILO
1 No DS6A7A1 and 1 No. DS6B7A1	-	-	-	PR63WP-1	PR63WP-1-LILO
1 No DS9A7A1 and 1 No. DS9B7A1	PSFS1253ND	-	-	PR125SDF-1	PR125SDF-1-LILO
1 No DS9A7A1 and 1 No. DS9B7A1	-	XUF3FABU00 + separate Neutral Link + Rotary Handle	-	PR125MCCB-1	PR125MCCB-1-LILO
1 No DS9A7A1 and 1 No. DS9B7A1	-	-	-	PR125WP-1	PR125WP-1-LILO

Double Outlet

2 No DS6A7A1 and 2 No. DS6B7A1	-	XUF3FABU00 + separate Neutral Link + Rotary Handle	-	PR63MCCB-2	PR63MCCB-2-LILO
2 No DS6A7A1 and 2 No. DS6B7A1	PSFS1253ND	-	-	PR63SDF-2	PR63SDF-2-LILO

* Prices : Available on request

Auto TransformerBCH

Auto Transformer Starter Panels upto 800 HP

Advantages

Good Starting Torque and current performance

Possibility of adjusting starting parameters

No break in supply to the motor during starting

Best suited when maximum reduction of Inrush current is desired or motor requires longer acceleration time with Good starting torque

- Blowers
- Pumps
- Compressors
- Extruders
- Crushers

Range & Specifications

- Available upto 800HP
- Standard Tappings : 50% , 65% and 80%
- Air Cooled design
- 7 Tank pre treated bolted construction enclosure
- Superior gasket

Protections

- Short Circuit
- Overload and Single Phasing (Thru Overload relay)
- Under voltage
- Other protections available on request

Metering and indication

- Voltmeter with selector switch
- Ammeter with selector switch
- R, Y, B phase indication
- Motor ON, OFF and Trip indication



BCH advantage over conventional Oil Cooled design

CONVENTIONAL OIL COOLED	BCH AIR COOLED
AT is provided as a separate Unit	Panel Size is compact as AT is a part of the panel
Additional Wiring between AT and panel	Less wiring
Oil to be filled, which adds cost to the panel	No extra cost
Maintenance is costly as oil to be regularly monitored for its level , viscosity. When sludge is formed it needs to be replaced	Practically NO maintenance
Moisture in the oil can burn the Transformer so ATS cannot be installed in moisture prone areas	Suitable for all atmospheric conditions
Less initial cost but high running cost	Slightly high Initial cost but very less running cost

Auto Transformer BCH

BIL Auto Transformer Starter - STANDARD RATINGS	MODEL 1 - BASIC ATS : PU door-gasket Enclosure, 3nos. Power Contactor, Citation OLR, Start/Stop PB, Motor ON LED		MODEL 2 - PREMIUM Version : PU door- gasket Enclosure, MCCB Incomer, 3nos. Power Contactor, Citation OLR, Electronic SPP, Ammeter/voltmeter with selector switches, Start/Stop PB, Phase & Motor ON/Trip LEDs.	
HP	Cat. No.	Unit	Cat. No.	Unit
7.5	ATEA10/KOR	Contact Nearest Sales Office for Prices	ATPA10/KOR	Contact Nearest Sales Office for Prices
10	ATEA10		ATPA10	
15	ATEA15		ATPA15	
20	ATEA20		ATPA20	
25	ATEA25		ATPA25	
30	ATEA30		ATPA30	
35	ATEA40		ATPA40	
40	ATEA40		ATPA40	
50	ATEA50		ATPA50	
60	ATEA60		ATPA60	
75	ATEA75		ATPA75	
100	ATEA100		ATPA100	
125			ATPA125	
150			ATPA150	
175			ATPA175	
200			ATPA200	
225			ATPA225	
250			ATPA250	
300			ATPA300	
350			ATPA350	
400			ATPA400	

TERMS & CONDITIONS

Prices • • • •

The purchase price is the standard price ruling at the date of despatch and is subject to change without notice. All contract prices will be as on the date of contract acceptance.

Jurisdiction • • • •

The courts at Faridabad will have jurisdiction to settle all the disputes raised.

Duties and Taxes • • • •

- Maximum Retail Price (MRP) is inclusive of excise duty and VAT/Sales Tax as may be applicable.
- List Prices do not include sales tax and other levies such as octroi; these will be charged extra as applicable.

In case where any sales tax exemption has been claimed, the purchaser is responsible for providing the necessary sales tax exemption form within the specified period, failing which the purchaser would be liable for the payment of full sales tax plus applicable interest and penalties.

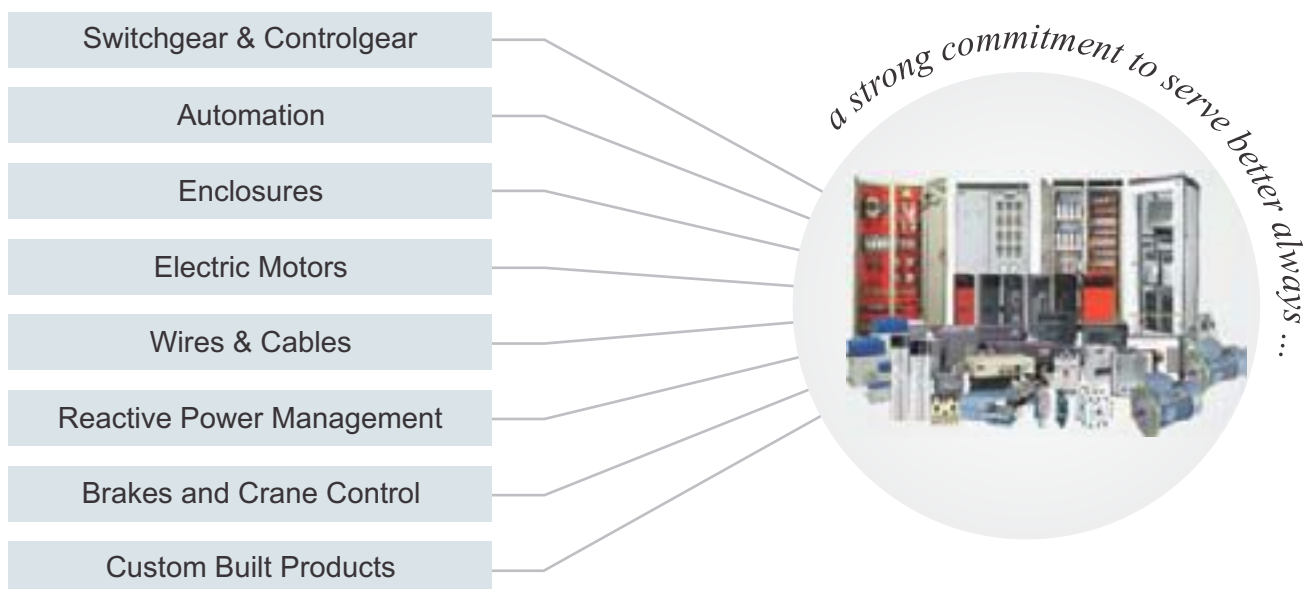
Order Changes • • • •

Alterations made after receipt and confirmation of order are subject to price and delivery revisions and any other expenses or levies.

a strong commitment
to serve better
always ...



BCH ELECTRIC LIMITED
we care for you



BCH ELECTRIC LIMITED

Visit us at : www.bchindia.com

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Works 2 : 64-68, Sector-7, IIE, Pant Nagar, Rudrapur, Udham Singh Nagar - 263 153 (Uttarakhand) Tel. : 05944-250214/16 Fax : 05944-250215

Sales Offices :

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Ahmedabad - 380 009
Tel. : 079-26565719/40074482
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E-mail : ahmedabad@bchindia.com

Bangalore

B.M.H. Complex, 2nd Floor,
No. 22, Kengal Hanumanthiah Road,
Bangalore - 560 027
Tel. : 080-22273478/41144878/41144879
Fax : 080-22236759
E-mail : bangalore@bchindia.com

Chandigarh

SCO 121-22-23, 1st Floor,
Sector 34-A, Chandigarh - 160 022
Tel. : 0172-5078957/2666122
Fax : 0172-5049905
E-mail : chandigarh@bchindia.com

Chennai

LVR CENTRE, 3rd Floor,
No. 7, Seshadri Road,
Alwarpet, Chennai - 600 018
Tel. : 044-24997042/24997002
Fax : 044-24996853
E-mail : chennai@bchindia.com

Coimbatore

87, Dr. Nanjappa Road,
Coimbatore - 641 018
Tel. : 0422-2305311
Fax : 0422-2302599
E-mail : coimbatore@bchindia.com

Faridabad

20/4, Mathura Road,
Faridabad - 121 006 (Haryana)
Tel. : 0129-2304016
E-mail : faridabad@bchindia.com

Hyderabad

1-8-303/48/13/102, Arya One,
2nd Floor, F. G. Road,
Secunderabad - 500 003
Tel. : 040-66206263/27890306
Fax : 040-66207273
E-mail : hyderabad@bchindia.com

Indore

330-331, Indraprastha Tower,
3rd Floor, 6, M.G. Road,
Indore - 452 001
Tel. : 0731-2510011
Fax : 0731-2510012
E-mail : indore@bchindia.com

Jaipur

25, Hathroi, Gopalbari,
Jaipur - 302 001
Tel. : 0141-5104521
Fax : 0141-2363521
E-mail : jaipur@bchindia.com

Jamshedpur

3rd Floor, Aastha Trade Centre,
CJ Road, Bistupur,
Jamshedpur - 831 001
Tel. : 0657-2756171/2756157
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Kolkata

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20-B, Abdul Hamid Street,
Kolkata - 700 069
Tel. : 033-22138508-12
Fax : 033-22138511
E-mail : kolkata@bchindia.com

Lucknow

Madan Plaza, 3rd Floor,
14, Station Road,
Lucknow - 226 001
Tel. : 0522-4025597/4025997
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E-mail : lucknow@bchindia.com

Ludhiana

S.C.O. - 18, 2nd Floor,
Feroze Gandhi Market,
Ludhiana - 140 001
Tel. : 0161-5021807/5022808
Fax : 0161-5021807
E-mail : ludhiana@bchindia.com

Mumbai

A-151, Mittal Tower,
Nariman Point,
Mumbai - 400 021
Tel. : 022-22822947/22826039
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E-mail : mumbai@bchindia.com

Nagpur

3rd Floor, "Paradise Plaza",
Kadbi Chowk,
Nagpur - 440 004,
Nagpur - 440 004
Tel. : 0712-2041518
Telefax : 0712-2041670
E-mail : nagpur@bchindia.com

New Delhi

801, Akash Deep Building,
26A, Barakhamba Road,
New Delhi - 110 001
Tel. : 011-23313878/66307065
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E-mail : delhi@bchindia.com

Pune

8, Sarosh Bhavan,
16-B/1, Dr. Ambedkar Road,
Pune - 411 001
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Raipur

2nd Floor, Building No. B-234,
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Pandri, Raipur - 492 004
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Surat

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21st Century Business Centre,
Ring Road, Surat - 395 002
Tel. : 0261-2331840
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Trichy

Kingstone Park, 2nd Floor,
19/1, Puthur High Road,
Ramalinga Nagar,
Trichy - 620 017
Tel. : 0431-4040497
E-mail : trichy@bchindia.com

Vadodara

101, Toran Complex,
Vikas Nagar, Old Padra Road,
Vadodara - 390 020
Tel. : 0265-2345069
Telefax : 0265-2345068,
E-mail : vadodara@bchindia.com

Other Branch Locations

Bhubaneswar : bhubaneswar@bchindia.com, **Cochin :** cochin@bchindia.com, **Dehradun :** dehradun@bchindia.com, **Gurgaon :** gurgaon@bchindia.com, **Guwahati :** guwahati@bchindia.com,
Hospet : hospet@bchindia.com, **Hubli :** hubli@bchindia.com, **Madurai :** madurai@bchindia.com, **Vishakapatnam :** vizag@bchindia.com

Resident Engineer Locations

Ambala	Bhopal	Haldwani	Mehsana	Puducherry	Siliguri
Ankleshwar	Bhubaneswar	Haridwar	Muzaffarnagar	Rajkot	Thiruvananthapuram
Baddi	Chandrapur	Jabalpur	Mysore	Rajahmundry	Tinsukia
Bardhaman	Cuttack	Jalandhar	Nashik	Ranchi	Udaipur
Belgaum	Durgapur	Korba	Navi Mumbai	Rourkela	Varanasi
Bhilai	Ghaziabad	Kota	Patiala	Solapur	Warangal
Bhiwadi	Gwalior	Mangalore	Patna	Salem	

Since product improvement is a continuous process, the data furnished in this brochure may undergo revision without prior notice.