



# PRICE LIST

Effective : 16th February 2015



**BCH ELECTRIC LIMITED**

# Modern facilities at Faridabad & Rudrapur



BCH ELECTRIC LIMITED

## Our Strengths:

- ◆ State-of-the-art product development and R&D
- ◆ Modern manufacturing facilities
- ◆ Tool room with latest facilities
- ◆ Serving customers for five decades
- ◆ Presence in ~50 locations
- ◆ 650 channel partners
- ◆ ISO 9001:2008 certified company

## Core Values:

- ◆ Integrity
- ◆ Nurturing People
- ◆ Commitment to Customers
- ◆ Striving for Excellence
- ◆ Long Term Thinking



## Quality Policy

We are committed to provide products and services meeting or exceeding customers needs and expectations.

Continual improvement and learning aimed at customer satisfaction through involvement of people shall be the guiding principle.

## Health & Safety Policy

It is our policy to comply with applicable statutory and regulatory requirements related to health and safety.

We shall endeavor to achieve this by providing safe working conditions and promoting awareness through training.

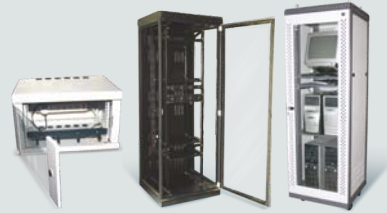
[www.bchindia.com](http://www.bchindia.com)



# 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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DESIGNED FOR  
**TOUGHEST** CONDITIONS

**Reiliant**  
BCH ELECTRIC LIMITED

## Moulded Case Circuit Breaker

- Designed for Indian conditions, rated at 50°C
- High Electrical & Mechanical Life
- Line Load Interchangeability
- Universal Accessory fitment



**BCH ELECTRIC LIMITED**

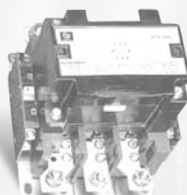
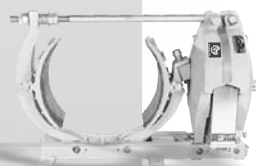
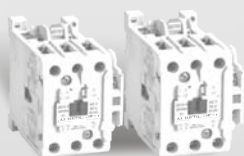
**Corporate Office :** 1105, New Delhi House, 27, Barakhamba Road, New Delhi - 110 001 Tel. : 91-11-23316029/3610/6539/43673100 Fax : 91-11-23715247  
E-mail : [marketing@bchindia.com](mailto:marketing@bchindia.com) • [www.bchindia.com](http://www.bchindia.com)

**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



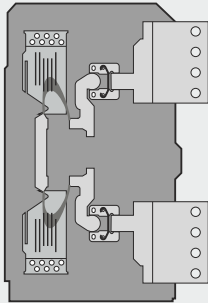
- **Air Circuit Breakers**
- **MCCBs**
  - Resilient, Tembreak, Tembreak Plus, Eco Plus
- **FSU, SDFU**
- **AC Contactors**
- **DC Contactors**
- **Solid State Relays**
- **Overload Relays**
- **Electronic Overcurrent Relays (BOCR)**
- **Motor Protection Circuit Breakers (MPCB)**
- **Limit Switches**
- **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**





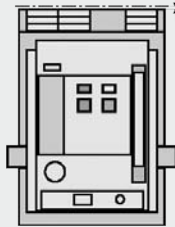
### Very fast interruption by "DoubleBreak" system

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.



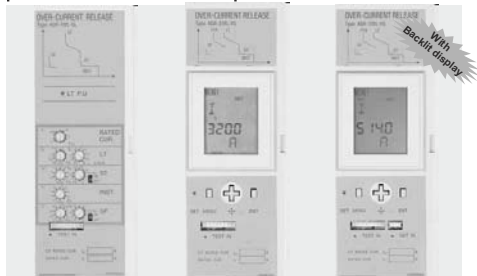
### No extra arc space required, vertical stacking permitted

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-11B. Standard OCR with LCD- 'Ammeter' Type AGR-21B, 22B. Enhanced OCR with LCD- 'Analyser' Type AGR-31B.

- For General Feeder circuits (L Characteristics)
- For General Feeder circuits (R Characteristics)
- For Generator protection (S Characteristics)

### Protection features

- |                 |  |  |
|-----------------|--|--|
| <b>Standard</b> | <ul style="list-style-type: none"> <li>Long time delay</li> <li>Short time delay</li> <li>Instantaneous</li> </ul> | <ul style="list-style-type: none"> <li>N-phase protection</li> <li>Earth leakage</li> <li>Two channel pre trip</li> <li>Advance LCD display</li> </ul> |
| <b>Optional</b> | <ul style="list-style-type: none"> <li>Ground fault</li> <li>Reverse Power trip</li> </ul>                         | <ul style="list-style-type: none"> <li>Contact temperature monitoring</li> <li>Communication protocol</li> <li>Phase rotation protection</li> </ul>    |

For prices contact our nearest sales office.

## TemPower - 2 Range of Air Circuit Breakers

| Type Rated / Frame Size | Current (A) | Poles | Breaking Capacity <sup>®</sup><br>$I_{cs} = I_{cu} = I_{cw}(1sec)$<br>at 440VAC | Standard MRP [₹]* |        |
|-------------------------|-------------|-------|---|-------------------|--------|
|                         |             |       |   | MDO               | EDO    |
| AR208S                  | 800         | 3     | 65KA  | 160545            | 188380 |
|                         |             | 4     |   | 191870            | 227920 |
| AR212S                  | 1250        | 3     | 65KA  | 176120            | 212170 |
|                         |             | 4     |   | 225290            | 261330 |
| AR216S                  | 1600        | 3     | 65KA  | 201990            | 238040 |
|                         |             | 4     |   | 249540            | 285590 |
| AR220S                  | 2000        | 3     | 65KA  | 247120            | 283170 |
|                         |             | 4     |   | 304220            | 340270 |
| AR325S                  | 2500        | 3     | 85KA  | 311275            | 347330 |
|                         |             | 4     |   | 395540            | 431590 |
| AR332S                  | 3200        | 3     | 85KA  | 364785            | 400840 |
|                         |             | 4     |   | 460760            | 496810 |
| AR440S                  | 4000        | 3     | 100KA   | 441760            | 479100 |
|                         |             | 4     |   | 528870            | 572430 |

@ ACBs with higher breaking capacity and higher current ratings are also available on request

■ Fixed ACB is also available 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)

\*Standard MRP, means a standard breaker with

A) Main Safety Shutter (in case of draw out ACB)

B) Auxiliary Switch (4 change over )

C) Closing coil (In case of Motorised ACBs)

D) 1 No Draw out handle (in case of draw out ACB )

F) Terminations are standard as per : Horizontal : Upto (AR216S)

Vertical : (AR220S, AR325S, AR332S and AR440S)

G) Calibration : 40° C

H) Neutral CT is required to be ordered when Ground Fault option is required in the release (example AGR11BL-GL)

Please note that the price of the ACBs mentioned above is only indicative, to get an actual quote please fill in the ACB Ordering form provided overleaf

### Electronic Release

| Over current releases (OCR) | Functions                     | Additional Price [₹] |
|-----------------------------|-------------------------------|----------------------|
| AGR-11BL-GL                 | LSIG*                         | 1620                 |
| AGR-21BL-PS                 | LSI with LCD display          | 9150                 |
| 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 <sup>‡</sup>        | MRP [₹] |
|---------------------------------|---------|
| Shunt Release                   | 2680    |
| UVT - Instantaneous type        | 11790   |
| UVT - Delay type                | 11790   |
| Closing Release                 | 2680    |
| Auxiliary Switch                | 780     |
| Neutral CT 800A & 1200AF        | 3650    |
| Neutral CT 1600A & 2000 AF      | 4180    |
| Neutral CT 2500A & 3200 AF      | 8000    |
| Neutral CT 4000AF               | 11260   |
| Mechanical Interlock Horizontal | on req. |
| Mechanical Interlock-Vertical   | on req. |
| Key Lock (In ON)                | on req. |
| Key Lock (In OFF)               | on req. |

‡ Other accessories and spares like castle lock , safety shutter , door interlock, motor charging units, etc. are available on request

\* For more details refer product catalogue



BCH ELECTRIC LIMITED

TEMPOWER -2 ACB ORDERING FORM

For general feeder circuits (L/R-characteristic)

Please check boxes and fill in underlined spaces appropriate.

Your company name : Order Number :

Quantity : PCS Delivery required : / /

Specification Summary :

1 Type P14,15 P14,15 2 Number of poles 3 Circuit voltage and frequency 4 Applicable standard and ambient temperature 5 Type of mounting P17-19,43,44 6 Type of spring charged operation P20 - 22 7 Over-current release (OCR) P25 - 37 8 Electrical tripping devices P23, 24 9 Other accessories P40 P28, 40 - 44 1 Special environment specification P45 1 Spare parts 1 Documents 1 Other P18, 38

\*1 : One handle come standard with every five ACB's. Specify the number of additional handles if needed. \*2 : Fixed type Undervoltage Trip can not be fitted with shunt trip device. However, Instantaneously rated shunt trip can be used together with fixed type undervoltage trip (except DC rating) with special specification. Contact terasaki for details.

# Reilient MCCB..... BCH

- High Performance Compact Size
- Suitability for Isolation
- Tested and rated for 50° C ambient condition
- Line Load Interchangeability
- Double Insulation



## RS

Frame -1 :

$I_{cu} / I_{cs} = 10 / 7.5, 15 / 15, 30 / 15 \text{ kA}$



## RH

Frame -1 :

$I_{cu} / I_{cs} = 25 / 25, 36 / 30, 50 / 25 \text{ kA}$

| $I_{cu}$ | Variant | Rated Current | Overload Setting | Ordering Code | MRP [₹] |
|----------|---------|---------------|------------------|---------------|---------|
| 15kA ~   | RS      | 100           | Fixed            | XFN100P#      | 3600    |
|          |         | 80            |                  | XFN080P#      | 3600    |
|          |         | 63            |                  | XFN063P       | 3600    |
|          |         | 50            |                  | XFN050P       | 3600    |
|          |         | 40            |                  | XFN040P       | 3600    |
|          |         | 32            |                  | XFN032P       | 3600    |
|          |         | 25            |                  | XFN025P       | 3600    |
|          |         | 20            |                  | XFN020P       | 3600    |
|          |         | 16            |                  | XFN016P       | 3600    |
| 10kA @   | RS      | 100           | Fixed            | XFE100G#      | 1750    |
|          |         | 80            |                  | XFE080G#      | 1750    |
|          |         | 63            |                  | XFE063G       | 1600    |
|          |         | 50            |                  | XFE050G       | 1600    |
|          |         | 40            |                  | XFE040G       | 1600    |
|          |         | 32            |                  | XFE032G       | 1600    |
|          |         | 25            |                  | XFE025G       | 1600    |
|          |         | 20            |                  | XFE020G       | 1600    |
|          |         | 16            |                  | XFE016G       | 1600    |
| 30kA ^   | RS      | 100           | Adjustable       | XFH100NV#     | 4110    |
|          |         | 80            |                  | XFH080NV#     | 4110    |
|          |         | 63            |                  | XFH063NV      | 4110    |
|          |         | 50            |                  | XFH050NV      | 4110    |
|          |         | 40            |                  | XFH040NV      | 4110    |
|          |         | 32            |                  | XFH032NV      | 4110    |
|          |         | 25            |                  | XFH025NV      | 4110    |
|          |         | 20            |                  | XFH020NV      | 4110    |
|          |         | 16            |                  | XFH016NV      | 4110    |
| 36kA ^   | RH      | 100           | Adjustable       | XFL100NV#     | 4740    |
|          |         | 80            |                  | XFL080NV#     | 4740    |
|          |         | 63            |                  | XFL063NV      | 4740    |
|          |         | 50            |                  | XFL050NV      | 4740    |
|          |         | 40            |                  | XFL040NV      | 4740    |
|          |         | 32            |                  | XFL032NV      | 4740    |
|          |         | 25            |                  | XFL025NV      | 4740    |
|          |         | 20            |                  | XFL020NV      | 4740    |
|          |         | 16            |                  | XFL016NV      | 4740    |

~ means  $I_{cs} = 100\% I_{cu}$   
 @ means  $I_{cs} = 75\% I_{cu}$   
 ^ means  $I_{cs} = 50\% I_{cu}$

# Spreader Link available as standard ( for MCCB without spreader , please contact our sales team)

All above MCCBs have fixed (non adjustable) Magnetic setting

MCCBs with different  $I_{cu} / I_{cs}$  combination can be made available on request

MCCBs are available in unit pack as standard for bulk packing option please contact our sales team

All needed accessories are mentioned on page no 6  
 (Extended terminals for all ratings is also available as accessory)

\* For more details refer product catalogue



# Resilient MCCB..... BCH



## RS

Frame -2 :  
 $I_{cu} / I_{cs} = 25/25, 36/18 \text{ kA}$



## RH

Frame -2 :  
 $I_{cu} / I_{cs} = 36/27, 36/36, 50/50 \text{ kA}$

- High Performance Compact Size
- Suitability for Isolation
- Rated at 50° C
- Line Load Interchangeability
- Double Insulation

| $I_{cu}$ | Variant | Rated Current | Overload Setting | Ordering Code | MRP [₹] |
|----------|---------|---------------|------------------|---------------|---------|
| 25kA ~   | RH      | 100           | Adjustable       | XF2H100PV     | 5410    |
|          |         | 80            |                  | XF2H080PV     | 5410    |
|          |         | 63            |                  | XF2H063PV     | 5410    |
|          |         | 50            |                  | XF2H050PV     | 5410    |
|          |         | 40            |                  | XF2H040PV     | 5410    |
|          |         | 32            |                  | XF2H032PV     | 5410    |
|          |         | 25            |                  | XF2H025PV     | 5410    |
|          |         | 20            |                  | XF2H020PV     | 5410    |
|          |         | 16            |                  | XF2H016PV     | 5410    |
| 50kA ^   | RH      | 100           | Adjustable       | XF2H100NV     | 8580    |
|          |         | 80            |                  | XF2H080NV     | 8580    |
|          |         | 63            |                  | XF2H063NV     | 8580    |
|          |         | 50            |                  | XF2H050NV     | 8580    |
|          |         | 40            |                  | XF2H040NV     | 8580    |
|          |         | 32            |                  | XF2H032NV     | 8580    |
|          |         | 25            |                  | XF2H025NV     | 8580    |
|          |         | 20            |                  | XF2H020NV     | 8580    |
|          |         | 16            |                  | XF2H016NV     | 8580    |
| 25kA ~   | RS      | 250           | Adjustable       | XF2E250PV#    | 18000   |
|          |         | 200           |                  | XF2E200PV#    | 11000   |
|          |         | 160           |                  | XF2E160PV     | 9450    |
|          |         | 125           |                  | XF2E125PV     | 6450    |
|          |         | 250           |                  | XF2N250NV#    | 11780   |
| 36kA ^   | RS      | 200           | Adjustable       | XF2N200NV#    | 10100   |
|          |         | 160           |                  | XF2N160NV     | 7650    |
|          |         | 125           |                  | XF2N125NV     | 5810    |
|          |         | 250           |                  | XF2N250GV#    | 18000   |
| 36kA @   | RH      | 200           | Adjustable       | XF2N200GV#    | 16800   |
|          |         | 160           |                  | XF2N160GV     | 12000   |
|          |         | 125           |                  | XF2N125GV     | 9000    |
|          |         | 250           |                  | XF2N250PV#    | 18200   |
| 36kA ~   | RH      | 200           | Adjustable       | XF2N200PV#    | 17000   |
|          |         | 160           |                  | XF2N160PV     | 12200   |
|          |         | 125           |                  | XF2N125PV     | 9200    |
|          |         | 250           |                  | XF2H250NV#    | 17300   |
| 50kA ^   | RH      | 200           | Adjustable       | XF2H200NV#    | 14700   |
|          |         | 160           |                  | XF2H160NV     | 10900   |
|          |         | 125           |                  | XF2H125NV     | 8500    |
|          |         | 250           |                  | XF2H250PV#    | 20900   |
| 50kA ~   | RH      | 200           | Adjustable       | XF2H200PV#    | 19550   |
|          |         | 160           |                  | XF2H160PV     | 15150   |
|          |         | 125           |                  | XF2H125PV     | 12200   |

# Spreader Link available as standard ( for MCCB without spreader , please contact our sales team)  
 All above MCCBs have fixed (non adjustable) Magnetic setting  
 MCCBs with different  $I_{cu} / I_{cs}$  combination can be made available on request  
 MCCBs are available in unit pack as standard for bulk packing option please contact our sales team

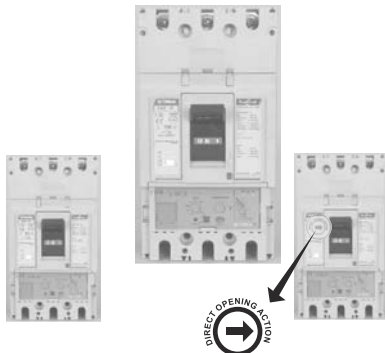
~ means  $I_{cs} = 100\% I_{cu}$   
 @ means  $I_{cs} = 75\% I_{cu}$   
 ^ means  $I_{cs} = 50\% I_{cu}$

All needed accessories are mentioned on page no 6  
 (Extended terminals for all ratings is also available as accessory)

\* For more details refer product catalogue

## TEMBREAK-2 Range of MCCBs

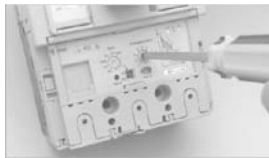
Total Protection Complete Control



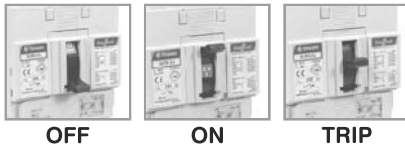
**TemBreak**



User friendly adjustment



Clear Trip Indication



| Ratings A  | Frame  | Breaking Capacity (at 415VAC) |        | Cat No. 3P       | MRP [₹] 3P | Cat No. 4P       | MRP [₹] 4P |
|--|--------|-------------------------------|--------|------------------|------------|------------------|------------|
|  |        | Icu KA                        | Ics KA |                  |            |                  |            |
| <b>THERMAL MAGNETIC RELEASES (Thermal adjustable from 63% to 100% In, Magnetic Adjustable from 6 to 12 In)</b> |        |                               |        |                  |            |                  |            |
| 20,32,50,63,100  | E125NJ | 25                            | 19     | XT2E125NJ3F■U0   | 5850       | XT2E125NJ4F■U0   | 8460       |
| 125  | E125NJ | 25                            | 19     | XT2E125NJ3FABU0  | 7420       | XT2E125NJ4FABU0  | 8645       |
| 20,32,50,63,100  | S125NJ | 36                            | 30     | XT2S125NJ3F■U0   | 8070       | XT2S125NJ4F■U0   | 9550       |
| 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     | XT2S160NJ3F■U0   | 10500      | XT2S160NJ4F■U0   | 13580      |
| 160  | S160GJ | 65                            | 36     | XT2S160GJ3F■U0   | 13270      | XT2S160GJ4F■U0   | 28320      |
| 160  | H160NJ | 125                           | 85     | XT2H160NJ3F■U0   | on request | XT2H160NJ4F■U0   | on request |
| 160  | L160NJ | 200                           | 150    | XT2L160NJ3F■U0   | on request | XT2L160NJ4F■U0   | on request |
| 250  | E250NJ | 25                            | 19     | XT2E250NJ3F■U0   | 14060      | XT2E250NJ4F■U0   | 18360      |
| 250  | S250NJ | 36                            | 36     | XT2S250NJ3F■U0   | 19375      | XT2S250NJ4F■U0   | 21880      |
| 250  | S250GJ | 65                            | 36     | XT2S250GJ3F■U0   | 20025      | XT2S250GJ4F■U0   | 23485      |
| 250  | S250PE | 70                            | 70     | XT2S250PE3F■U0   | on request | XT2S250PE4F■U0   | on request |
| 250  | H250NJ | 125                           | 85     | XT2H250NJ3F■U0   | on request | XT2H250NJ4F■U0   | on request |
| 250  | L250NJ | 200                           | 150    | XT2L250NJ3F■U0   | on request | XT2L250NJ4F■U0   | on request |
| 400  | E400NJ | 25                            | 25     | XT2E400NJ3FD0U0  | 21560      | XT2E400NJ4FD0U0  | 26000      |
| 400  | S400CJ | 36                            | 36     | XT2S400CJ3FD0U0  | 22945      | XT2S400CJ4FD0U0  | 30110      |
| 400  | S400NJ | 50                            | 50     | XT2S400NJ3FD0U0  | 24350      | XT2S400NJ4FD0U0  | 31235      |
| 400  | H400NJ | 125                           | 85     | XT2H400NJ3FD0U0  | on request | XT2H400NJ4FD0U0  | on request |
| 400  | L400NJ | 200                           | 150    | XT2L400NJ3FD0U0  | on request | XT2L400NJ4FD0U0  | on request |
| <b>MICRO PROCESSOR BASED RELEASES</b>  |        |                               |        |                  |            |                  |            |
| <b>(LTD, STD AND INSTT as standard with Overload setting from 40% to 100% of In. Preset characteristics)</b>   |        |                               |        |                  |            |                  |            |
| 400  | S400NE | 50                            | 50     | XT2S400NE3FD0U0  | 27625      | XT2S400NE4FD0U0  | 32480      |
| 630  | E630NE | 36                            | 36     | XT2E630NE3F630U0 | 32450      | XT2E630NE4F630U0 | 43940      |
| 630  | S630CE | 50                            | 50     | XT2S630CE3F630U0 | 31390      | XT2S630CE4F630U0 | 45500      |
| 630  | S630GE | 70                            | 50     | XT2S630GE3F630U0 | 37990      | XT2S630GE4F630U0 | 52540      |

## Eco Plus Range of MCCB



**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)

| Frame  | Breaking Capacity KA at 415 V AC (Icu) | Rating (A)                  | Thermal Setting | Magnetic Setting | Cat No.    | MRP [₹] |
|--------|--|-----------------------------|-----------------|------------------|------------|---------|
| EP-100 | 10                                     | 16,20,25,32,40,50,63,80,100 | Fixed           | Fixed            | XEP-100-■  | 2550    |
| EP-125 | 25                                     | 16,20,25,32,40,50,63,80,100 | Fixed           | Fixed            | XEP-125-■  | 5530    |
| EP-125 | 25                                     | 125                         | Fixed           | Fixed            | XEP-125-AB | 6650    |
| EP-250 | 18                                     | 160                         | Fixed           | Fixed            | XEP-250-AF | 6850    |
|        |  | 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 | 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   |

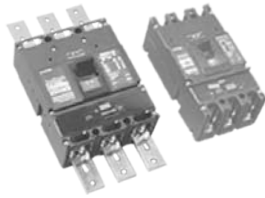
Accessories are mentioned on page no 9

\* For more details refer product catalogue





## Terasaki Moulded Case Circuit Breakers 'TemBreak' Economy Series 'XE', 3 Pole



- 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



| MRP Frame | Breaking Capacity KA at 415 VAC (I <sub>cu</sub> ) | Rating (A) In                         | Thermal Setting | Magnetic Setting | Cat. No.                              | MRP [₹]              |
|-----------|--|---------------------------------------|-----------------|------------------|---------------------------------------|----------------------|
| XE 100 NS | 10   | 10, 15, 20, 30, 40<br>50, 60, 75, 100 | Fixed           | Fixed            | X1B3FK00                              | 2765                 |
| XE 225 NC | 15   | 125, 150, 175<br>200<br>225           | Fixed           | Fixed            | X2C3F=K00<br>X2C3FB0K00<br>X2C3FBBK00 | 7770<br>7870<br>7890 |

Price of 400 and 600A fixed thermal setting MCCBs with Breaking Capacity of 25KA at 415 AC available on request.  
■ Add the current rating code as per the table below

## 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 VAC (I <sub>cu</sub> ) | Rating (A) In-Adj. 63%to100% | Cat. No.                 | MRP [₹] |       |
|-----------|--|------------------------------|--------------------------|---------|-------|
|           |  |                              |                          | 3Pole   | 4Pole |
| XS 125 NJ | 25   | 20,32,50,63,100<br>125       | XUF*F=U00<br>XUF*FABU00  | 6195    | 8360  |
|           |  |                              |                          | 7635    | 9040  |
| XS 250 NJ | 25   | 160<br>250                   | X20*FAFU00<br>X20*FBEU00 | 11810   | 15350 |
|           |  |                              |                          | 14285   | 18400 |
| XS 250 PJ | 35   | 160<br>250                   | X2P*FAFU00<br>X2P*FBEU00 | 13385   | 17310 |
|           |  |                              |                          | 18510   | 22080 |
| XS 400 CJ | 35   | 400                          | X41*FD0U00               | 22730   | 28140 |
|           |  |                              |                          | 34385   | 44860 |
| XS 630 CJ | 35   | 630                          | X6N*V                    | 34385   | 44860 |
|           |  |                              |                          |         |       |
| XH 125 NJ | 50   | 20,32,50,63,100<br>125       | XUG*F=U00<br>XUG*FABU00  | 9740    | 11905 |
|           |  |                              |                          | 11040   | 13635 |
| XH 250 NJ | 50   | 160<br>250                   | X2Q*FAFU00<br>X2Q*FBEU00 | 15155   | 18895 |
|           |  |                              |                          | 20670   | 23920 |
| XS 400 NJ | 50   | 400                          | X4J*FD0U00               | 24140   | 30520 |
|           |  |                              |                          |         |       |
| XS 630 NJ | 50   | 630                          | X60*V                    | 37515   | 48220 |
|           |  |                              |                          |         |       |
| XS 800 NJ | 50   | 800                          | X8J*V                    | 40155   | 53030 |
|           |  |                              |                          |         |       |

\* Add 3 for Three Pole and 4 for Four Pole  
■ Add the current rating code as per the table below

## 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)

Ics = 50 KA

|  |
|--|
| <b>P</b> owerful interrupting Capacities |
| <b>L</b> imitation of System Damage      |
| <b>U</b> nique Contact Structure         |
| <b>S</b> electivity Enhanced Switchgear  |

| Frame   | Breaking Capacity I <sub>cu</sub> at 415 VAC | Rating                  | Cat. No.                | MRP [₹] |        |
|---------|--|-------------------------|-------------------------|---------|--------|
|         |  |                         |                         | 3 Pole  | 4 Pole |
| XH125PJ | 50KA   | 20,32,50,63,100<br>125A | XUU*F=U00<br>XUU*FABU00 | 9370    | 11270  |
|         |  |                         |                         | 10680   | 12620  |
| XH160PJ | 50KA   | 160A                    | XUV* V                  | 17270   | 22000  |
| XH250PJ | 65KA   | 250A                    | X2U* V                  | 22145   | 27175  |
| XH400PJ | 65KA   | 400A                    | X4U* V                  | 23100   | 28600  |
| XH630PJ | 85KA   | 630A                    | X6U* V                  | 38270   | 51840  |
| XH800PJ | 85KA   | 800A                    | X8U* V                  | 39800   | 51900  |

\* Add 3 for Three Pole and 4 for Four Pole  
■ Add the current rating code as per the table below

Microprocessor based releases available on request

## 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 are available on page 9

\* For more details refer product catalogue

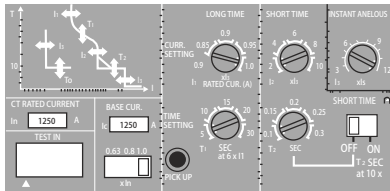


## Micro Processor MCCBs

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<br>Icu at 415 VAC | Rating (A) In | Cat. No. | MRP [₹] |        |
|----------|-------------------------------------|---------------|----------|---------|--------|
|          |                                     |               |          | 3 Pole  | 4 Pole |
| XH250PE  | 65KA                                | 250           | X21*V    | 33000   | 33500  |
| XS400NE  | 50KA                                | 400           | X4E*V    | 33660   | 39700  |
| XS630NE  | 50KA                                | 630           | X6E*V    | 52315   | 62195  |
| XS800NE  | 50KA                                | 800           | X8C*V    | 56205   | 67905  |
| XS1250NE | 65KA                                | 1250          | XXC*VK   | 77170   | 93450  |
| XS1600NE | 85KA                                | 1600          | XYA*V    | 121040  | 149000 |

\* 3 for 3 Pole and 4 for 4 Pole

## Marine Series MCCBs

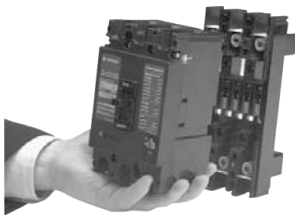
(1100V AC Insulation Voltage), 3 Pole,  
Front Connected Releases : Micro Processor Based (LTD, STD and INST)



| Breaking Capacity<br>(kA) at 1100 VAC | Rating (A) In | Cat. No. | MRP [₹] |
|---------------------------------------|---------------|----------|---------|
| 12.5                                  | 400A          | XV400NE  | 45530   |
| 12.5                                  | 630A          | XV630PE  | 75650   |
| 12.5                                  | 800A          | XV800NE  | 75250   |
| 20                                    | 1250A         | XV1250NE | 102800  |

## Plug in MCCBs

Plug in Type MCCBs



| Frame   | Rating (A) In               | Breaking Capacity<br>Icu at 415 VAC | MRP [₹] |        |
|---------|-----------------------------|-------------------------------------|---------|--------|
|         |                             |                                     | 3 Pole  | 4 Pole |
| XS50NB  | 10,20,30,40,50              | 10KA                                | 6450    | -      |
| XE100NS | 10,15,20,30,40,50,60,75,100 | 10KA                                | 6670    | -      |
| XS125NJ | 20,32,50,63,100,125         | 25KA                                | 12700   | 16450  |
| XS250NJ | 160,250                     | 25KA                                | 20000   | 29360  |
| XS250PJ | 160,250                     | 35KA                                | 26000   | 36450  |
| XS400CJ | 400                         | 35KA                                | 32450   | 42450  |
| XS400NJ | 400                         | 50KA                                | 36700   | 54980  |
| XS630CJ | 630                         | 35KA                                | 60000   | 72750  |
| XS630NJ | 630                         | 50KA                                | 64740   | 75670  |
| XS800NJ | 800                         | 50KA                                | 75400   | 94330  |
| XH125NJ | 20,32,50,63,100,125         | 50KA                                | 18100   | 19000  |
| XH250NJ | 160,250                     | 50KA                                | 28700   | 35500  |
| XS125CJ | 20, 32, 50, 63, 100, 125    | 14KA                                | 10810   | 13330  |

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

\* For more details refer product catalogue

# ACCESSORIES MCCB..... BCH

## ACCESSORIES FOR **Reilient** RANGE OF MCCBs



| Type                 | Product                | Rating         | Cat Code   | MRP [₹] |
|----------------------|------------------------|----------------|------------|---------|
| Internal Accessories | Shunt Release          | 220V - 415V F1 | XFSHT220V  | 990     |
|                      |                        | 220V - 415V F2 | XF2SHT220V | 990     |
|                      | Under Voltage Release  | 240V F1        | XFUV240VA  | 1330    |
|                      |                        | 240V F2        | XF2UV240VA | 1330    |
|                      |                        | 415V F1        | XFUV415VA  | 1500    |
|                      | Auxiliary Contacts     | 1 C/O + 1 C/O  | XFALAX11   | 1180    |
| 2 C/O                |                        | XFAX2          | 1180       |         |
| External Accessories | Din Rail               | F1             | F1DIN      | 150     |
|                      | Extended Rotary Handle | F1             | F1ROHE     | 1410    |
|                      |                        | F2             | F2ROHE     | 1450    |
|                      | Extended Terminals     | F1             | ACMF1TP100 | 250     |
|                      |                        | F2             | ACMF2TP250 | 890     |
|                      | Phase Barriers         | F1             | F1PB       | 50      |
|                      |                        | F2             | F2PB       | 150     |
|                      | MCCB Enclosure         | F1             | F1EU3P     | 700     |
| F2                   |                        | F2EU3P         | 1370       |         |

## ACCESSORIES FOR TEMBREAK-2 RANGE OF MCCB



| Type           | Description          | 125A        | 250A         | 400A & 630A | MRP [₹] |
|----------------|----------------------|-------------|--------------|-------------|---------|
| Aux Switch     | 1 Change over        |             | T2AX00M3SWA  |             | 750     |
| Alarm Switch   | 1 Change over        |             | T2AL00M3SWA  |             | 750     |
| Shunt Release  | 100-120VAC           |             | T2SH00A10WA  |             | 1900    |
| Shunt Release  | 200-240VAC           |             | T2SH00A20WA  |             | 1900    |
| Shunt Release  | 380-450VAC           |             | T2SH00A40WA  |             | 1900    |
| UV Release     | 200-240VAC           |             | T2UV00A20NWA |             | 3850    |
| UV Release     | 380-450VAC           |             | T2UV00A40NWA |             | 3850    |
| 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. |
| Rotary Handle  | Panel Mounted (IP54) | T2HP12R5BNA | T2HP25R5BNA  |             | 6785    |
| Rotary Handle  | Panel Mounted (IP54) |             |              | T2HP40R5BNA | 7595    |

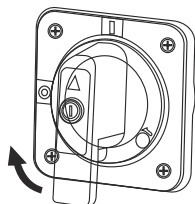
## Extended Terminals for All TEMBREAK MCCBs

| Frame            | For    | Cat Code  | MRP [₹] |
|------------------|--------|-----------|---------|
| XE100NS          | 3 Pole | ACMTP100  | 700     |
| XS125NJ          | 3 Pole | ACMTP1253 | 670     |
| XH125NJ          | 4 Pole | ACMTP1254 | 855     |
| XS250NJ, XS250NJ | 3 Pole | ACMTP2503 | 1000    |
| XH250NJ, XE225NC | 4 Pole | ACMTP2504 | 1560    |
| XS400CJ          | 3 Pole | ACMTP4003 | 2350    |
| XS400NJ          | 4 Pole | ACMTP4004 | 2470    |

One set = 6 Nos. Links for 3 Pole MCCBs  
 One set = 8 Nos. Links for 4 Pole MCCBs

## ACCESSORIES - ECO PLUS RANGE OF MCCBs

| Type                  | Description        | Product Frame | Cat Code           | MRP [₹] |
|-----------------------|--------------------|---------------|--------------------|---------|
| Shunt Release         | 200-415VAC         | EP-100        | 2HSHEP100-240/415V | 1500    |
|                       |                    | EP-125        | 2HSHEP125-240/415V | 2850    |
|                       |                    | EP-250        | 2HSHEP250-240/415V | 2850    |
| Under Voltage Release | 415VAC             | EP-100        | 2HUVEO100-415VAC   | 4440    |
|                       |                    | EP-125        | 2HUVEP125-415VAC   | 4440    |
|                       |                    | EP-250        | -                  | -       |
| Auxilliary contacts   | 1 C/O              | EP-100        | 2H-AUX-EP100       | 760     |
|                       |                    | EP-125        | 2H-AUX-EP125       | 760     |
|                       |                    | EP-250        | 2H-AUX-EP250       | 1000    |
| Alarm Switch          | 1 C/O              | EP-100        | 2H-AL-EP100        | 760     |
|                       |                    | EP-125        | 2H-AL-EP125        | 760     |
|                       |                    | EP-250        | 2H-AL-EP250        | 1200    |
| Rotary Handle         | IP-54 Black Handle | EP-100        | XFH-T1HP10R        | 2430    |
|                       |                    | EP-125        | XFH-T1HP12R        | 2430    |
|                       |                    | EP-250        | XFH-T1HP25R        | 2430    |



\* For more details refer product catalogue

## ACCESSORIES FOR TEMBREAK RANGE OF MCCB

| RATED VOLTAGE OF COIL            | 100A Frame  |                     |         | 125A Frame                            |         | 225A Frame |         |
|----------------------------------|-------------|---------------------|---------|---------------------------------------|---------|------------|---------|
|                                  | XE100NS 10A | XE100NS 15A TO 100A | MRP [₹] | XH125PJ<br>XS125NJ,SH125NJ<br>XH125PJ | MRP [₹] | XE225NC    | MRP [₹] |
| SHUNT TRIP AC (100V-115V)#       | 2H1927BABK  | 2H1929BAAK          | 1500    | 2H1935BACK                            | 2850    | 2H0153CABK | 2850    |
| SHUNT TRIP AC (200V-480V)#       | 2H1927BBBK  | 2H1929BBAK          | 1500    | 2H1935BBCK                            | 2850    | 2H0153CBBK | 2850    |
| SHUNT TRIP DC 24V                | 2H1927BCBK  | 2H1929BCAK          | 1500    | 2H1935BCCK                            | 2850    | -          | -       |
| UVT AC 380/450V #                | 2H1939BABK  | 2H1941BAAK          | 5020    | 2H1947BACK                            | 3175    | -          | -       |
| AUXILIARY SWITCH 1 CHANGE OVER # | UXXB0001CK  | UXXB0001CK          | 750     | UXXB0019DK (3P)<br>2H2383DAAK (4P)    | 750     | 2H0156CABK | 860     |
| ALARM SWITCH 1 CHANGE OVER #     | UXLB0006CK  | UXLB0006CK          | 750     | UXLB0001EK (3P)<br>2H2385DAAK (4P)    | 750     | 2H0157CABK | 970     |
| AUX-ALARM SWITCH # 1 CHANGE OVER | UXLB0008DK  | UXLB0008DK          | 1200    | UXLB0003EK (3P)<br>2H2387DAAK (4P)    | 750     | 2H0157CBBK | 970     |
| ROTARY HANDLE PANEL MOUNTED #    | XFHC1V      |                     | 1840    | XFHC22V                               | 1840    | TFH023CBV  | 1840    |

| RATED VOLTAGE OF COIL            | 250A Frame                               |         | 400A Frame   |         | 630/800A Frame  |         |
|----------------------------------|--|---------|--|---------|---|---------|
|                                  | XH160PJ<br>XS250NJ<br>XS250PJ<br>XH250NJ | MRP [₹] | XH250PJ<br>XS400CJ<br>XS400NJ<br>XS250PE<br>XH250PJ<br>XH400PJ | MRP [₹] | XS630NJ<br>XS630CJ<br>XS800NJ<br>XH630PJ<br>XH800PJ<br>XS630NE<br>XS800NE | MRP [₹] |
| SHUNT TRIP AC (100V-115V)#       | 2H1937BAAK                               | 2850    | 2H1305BAAK   | 3430    | 2H1515BAAK  | 3850    |
| SHUNT TRIP AC (200V-480V)#       | 2H1937BBAK                               | 2850    | 2H1306BAAK   | 3430    | 2H1516BAAK  | 3850    |
| SHUNT TRIP DC 24V                | 2H1937BCBK                               | 2850    | 2H1308BAAK   | 3430    | 2H1518BAAK  | 3850    |
| UVT AC 380/450V #                | 2H1949BABK                               | 3680    | 2H1492BAAK   | 4000    | 2H1503BAAK  | 4230    |
| AUXILIARY SWITCH 1 CHANGE OVER # | 2H1951BAAK                               | 1000    | UXXB0004EK   | 1385    | UXXB0007DK  | 2000    |
| ALARM SWITCH 1 CHANGE OVER #     | 2H1953BABK                               | 1000    | UXLB0009DK   | 1840    | UXLB0010DK  | 2000    |
| AUX-ALARM SWITCH # 1 CHANGE OVER | 2H1954BABK                               | 2290    | UXLB0013EK   | 4420    | UXLB0015DK  | 3230    |
| ROTARY HANDLE PANEL MOUNTED #    | XFHC23HV                                 | 1840    | XFHC34V  | 3010    | XFHC46V   | 5620    |
|                                  | XFHC23V (XS250NJ)                        | 1840    |  |         |   |         |

### 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





## Switch Disconnecter Fuse Units

Suitable for DIN / BOLTED fuses in open execution

| Rating (A)<br>AC-23A | Cat No.      | Fuse Type  | Type | MRP [₹] |
|----------------------|--------------|------------|------|---------|
| 32A                  | PSFS323ND00  | DIN        | TPN  | 1590    |
| 32A                  | PSFS323ND000 | DIN        | TPN  | 1590    |
| 32A                  | PSFS323NB    | Bolted     | TPN  | 1590    |
| 32A                  | PSFS323B     | Bolted     | TP   | 1560    |
| 63A                  | PSFS633ND00  | DIN        | TPN  | 2210    |
| 63A                  | PSFS633ND000 | DIN        | TPN  | 2210    |
| 63A                  | PSFS633NB    | Bolted     | TPN  | 2210    |
| 63A                  | PSFS633B     | Bolted     | TP   | 2140    |
| 100                  | PSFS1003*    | DIN/Bolted | TP   | 4380    |
| 100                  | PSFS1003N*   | DIN/Bolted | TPN  | 4590    |
| 125                  | PSFS1253*    | DIN/Bolted | TP   | 5790    |
| 125                  | PSFS1253N*   | DIN/Bolted | TPN  | 6210    |
| 160                  | PSFS160*     | DIN/Bolted | TP   | 6365    |
| 160                  | PSFS1603N*   | DIN/Bolted | TPN  | 6910    |
| 200                  | PSFS2003B    | DIN/Bolted | TP   | 7940    |
| 200                  | PSFS2003NB   | DIN/Bolted | TPN  | 8150    |

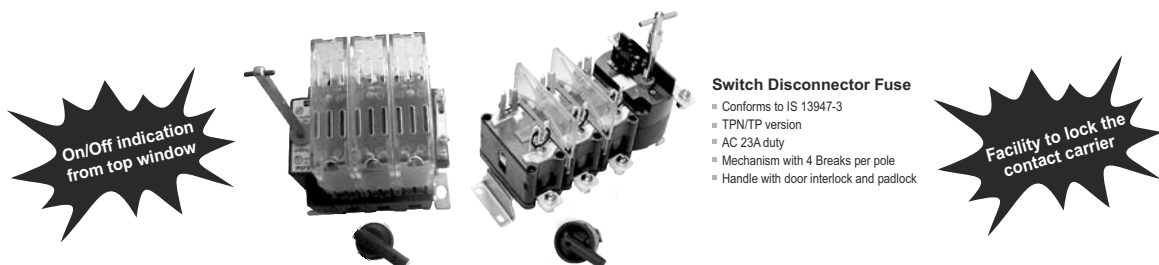
\* Prices are without fuse

## Switch Disconnecter

| Rating (A)<br>AC-23A | Cat No.   | Fuse Type | Type | MRP [₹] |
|----------------------|-----------|-----------|------|---------|
| 32A                  | PSSD323N  | -         | TPN  | 1540    |
| 63A                  | PSSD633N  | -         | TPN  | 2120    |
| 100A                 | PSSD1003N | -         | TPN  | 4220    |
| 125A                 | PSSD1253N | -         | TPN  | 5240    |
| 160A                 | PSSD1603N | -         | TPN  | 5905    |
| 200A                 | PSSD2003N | -         | TPN  | 6670    |

## Fuse Switch Units Type FS

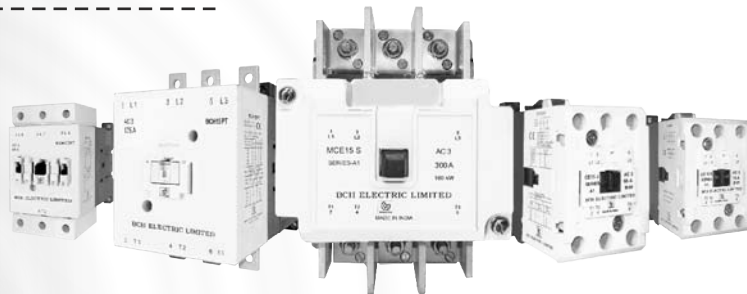
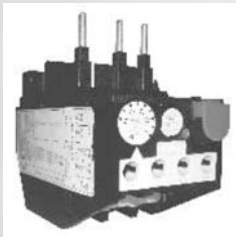
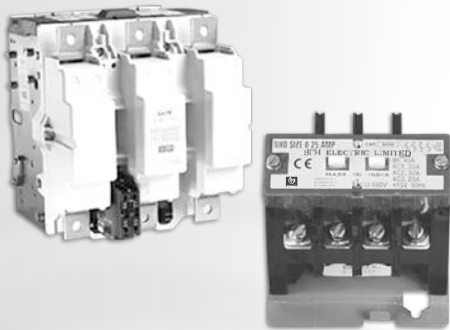
| Rating (A)<br>AC-23A | Cat No.  | Fuse Type | Type            | MRP [₹] |
|----------------------|----------|-----------|-----------------|---------|
| 32A                  | FS0N     | BOLTED    | TP              | 1620    |
| 63A                  | FS1N     | BOLTED    | TP              | 2220    |
| SHROUD               | AC21TS   |           |                 | 145     |
| 1NO+1NC              | AC21EB11 |           | for FS0 / FS1N  | 425     |
| NEUTRAL              | AC21L    |           | for FS0 / FS1N- | 195     |



# Controlgear

- DUROS FREEDOM CONTACTORS  
6A -1200A, AC3
- DEFINITE PURPOSE CONTACTORS
- CAP DUTY CONTACTORS
- AGRI CONTACTORS
  - 2 POLE
  - NHD SERIES
- CITATION SERIES 3 POLE

- **Contactors**
- **Overload Relay**
- **Electronic Over Current Relay**
- **Motor Protection Circuit Breaker**
- **Solid State Relay**
- **Push Buttons & Indicating Lights**

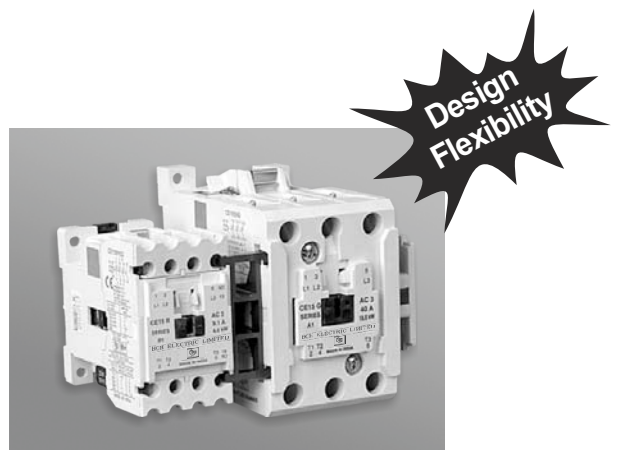


## DUROS FREEDOM RANGE



- Conforms to IEC 60947-4-1 / IS 13947
- No derating upto -20°C to 60°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
- Most compact design
- Low VA burden coils
- Successfully tested for Type - 2 coordination

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



### **BCH Series : From 400A to 1200A**

- Conforms to IEC60947-4-1 / IS 13947
- Insulation voltage upto 1000V
- Universal Control : Same coil for AC and DC Supply
- Delayed Drop Off feature for networks with transient power problem ensuring continuity of power supply
- Special magnet design for reduced shock and vibration
- Front open design for ease of inspection

## Duros Freedom Series 3 Pole AC Control

| Size | AC1 Rating | AC3 Rating 415 V |      |     | Aux. Contact | Cat. No.        | MRP [₹] | Lot Size |
|------|------------|------------------|------|-----|--------------|-----------------|---------|----------|
|      |            | A                | HP   | KW  |              |                 |         |          |
| A    | 20         | 6                | 3    | 2.2 | 1NO          | CE15ANS3 ■ B    | 700     | 1        |
|      |            |                  |      |     | 1NC          | CE15ANC3 ■ B    |         |          |
| B    | 20         | 9.1              | 5.5  | 4   | 1NO          | CE15BNS3 ■ B    | 795     |          |
|      |            |                  |      |     | 1NC          | CE15BNC3 ■ B    |         |          |
| C    | 20         | 12               | 7.5  | 5.5 | 1NO          | CE15CNS3 ■ B    | 915     |          |
|      |            |                  |      |     | 1NC          | CE15CNC3 ■ B    |         |          |
| D    | 32         | 16               | 10   | 7.5 | 1NO+1NC      | CE15DN3 ■ B     | 995     |          |
|      |            |                  |      |     | -            | CE15DN3 ■       | 910     |          |
|      | 32         | 18               | 10   | 7.5 | 1NO+1NC      | CE15D1N3 ■ B    | 995     |          |
|      |            |                  |      |     | -            | CE15D1N3 ■      | 910     |          |
| E    | 40         | 25               | 15   | 11  | 1NO+1NC      | CE15EN3 ■ B     | 1465    |          |
|      |            |                  |      |     | -            | CE15EN3 ■       | 1355    |          |
| F    | 40         | 32               | 20   | 15  | 1NO+1NC      | CE15FN3 ■ B     | 2895    |          |
|      |            |                  |      |     | -            | CE15FN3 ■       | 2790    |          |
| G    | 60         | 40               | 30   | 22  | 1NO+1NC      | CE15GN3 ■       | 4400    |          |
|      |            |                  |      |     | -            | CE15GN3 ■ NB    | 4295    |          |
| H    | 75         | 50               | 33.5 | 25  | 1NO+1NC      | CE15HN3 ■       | 5440    |          |
|      |            |                  |      |     | -            | CE15HN3 ■ NB    | 5320    |          |
| J    | 80         | 65               | 50   | 37  | 1NO+1NC      | CE15JN3 ■       | 7680    |          |
|      |            |                  |      |     | -            | CE15JN3 ■ NB    | 7400    |          |
| K    | 80         | 73               | 50   | 37  | 1NO+1NC      | CE15KN3 ■       | 7765    |          |
|      |            |                  |      |     | -            | CE15KN3 ■ NB    | 7665    |          |
|      | 80         | 75               | 50   | 37  | 1NO+1NC      | CE15K1N3 ■      | 7765    |          |
|      |            |                  |      |     | -            | CE15K1N3 ■ NB   | 7665    |          |
| K-1  | 115        | 80               | 53   | 40  | 1NO+1NC      | BCH15KT.3.11. ■ | 9460    |          |
| L    | 125        | 95               | 62   | 47  | 1NO+1NC      | BCH15LT.3.11. ■ | 11370   |          |
| M    | 135        | 110              | 80   | 60  | 1NO+1NC      | BCH15MT.3.11. ■ | 13450   |          |
| N    | 230        | 150              | 100  | 75  | 1NO+1NC      | BCH15NT.3.11. ■ | 17960   |          |
| P    | 250        | 175              | 125  | 95  | 1NO+1NC      | BCH15PT.3.11. ■ | 23360   |          |
| 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 22

## Duros Freedom Series 3 Pole AC/DC Control

| Size  | AC1 Rating(A) | AC3 Rating 415 V |     |     | Aux. Contact | Cat. No.      | MRP [₹] |
|-------|---------------|------------------|-----|-----|--------------|---------------|---------|
|       |               | A                | HP  | KW  |              |               |         |
| BCH54 | 600           | 400              | 320 | 240 | 2NO+2NC      | BCH54.3.22. ■ | 46200   |
| BCH55 | 600           | 450              | 320 | 240 | 2NO+2NC      | BCH55.3.22. ■ | 59600   |
| BCH57 | 760           | 550              | 420 | 315 | 2NO+2NC      | BCH57.3.22. ■ | 68800   |
| BCH62 | 1000          | 700              | 533 | 400 | 2NO+2NC      | BCH62.3.22. ■ | 133500  |
| BCH64 | 1000          | 860              | 666 | 500 | 2NO+2NC      | BCH64.3.22. ■ | 215000  |
| BCH76 | 1200          | 1000             | 800 | 600 | 1NO+2NC      | BCH76.3.12. ■ | 403000  |
| BCH78 | 1350          | 1200             | 933 | 700 | 1NO+2NC      | BCH78.3.12. ■ | 432000  |

■ For Coil Voltage Codes refer Table on page 22

For DC control circuit of contactor size BCH76/BCH78 add Rs.2600



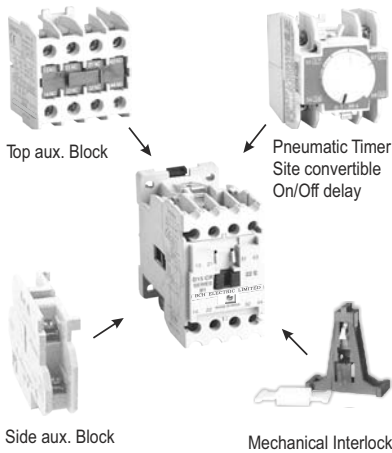


100% Rated  
4th Pole

## Duros Freedom Series 4 Pole AC Control

| AC1 Rating (A) | Cat. No.    | MRP [₹] |
|----------------|-------------|---------|
| 20             | CE15CN4 ■ B | 1175    |
| 32             | CE15DN4 ■   | 1235    |
| 40             | CE15EN4 ■   | 1875    |
| 60             | CE15GN4 ■   | 4525    |
| 75             | CE15HN4 ■   | 6015    |
| 80             | CE15JN4 ■   | 7000    |

### Common Accessories 'upto 73A'



## Duros Freedom Series 3 Pole DC Control Type CE16

Pure DC

| AC3 (A) at 415VAC | KW  | Aux Contact | Cat No.    | MRP [₹] |
|-------------------|-----|-------------|------------|---------|
| 9.1               | 4   | 1NO         | CE16BNS3*B | 1250    |
|                   |     | 1NC         | CE16BNC3*B | 1250    |
| 12                | 5.5 | 1NO         | CE16CNS3*B | 1315    |
|                   |     | 1NC         | CE16CNC3*B | 1315    |
| 16                | 7.5 | 1NO+1NC     | CE16DN3*B  | 1600    |
| 25                | 11  | 1NO+1NC     | CE16EN3*B  | 2180    |
| 32                | 15  | 1NO+1NC     | CE16FN3*B  | 4560    |

\*Coil Codes :  
DC control

|      |    |
|------|----|
| 24V  | U1 |
| 48V  | W1 |
| 110V | A1 |
| 220V | B1 |
| 60V  | X1 |

## Contactor : 3 Pole DC Control Type CE15

| AC3 (A) at 415VAC | KW | Aux Contact | Cat No.   | MRP [₹] |
|-------------------|----|-------------|-----------|---------|
| 40                | 22 | —           | CE15GN3 ■ | 5350    |
| 50                | 25 | —           | CE15HN3 ■ | 6940    |
| 65                | 37 | —           | CE15JN3 ■ | 8050    |
| 73                | 37 | —           | CE15KN3 ■ | 9620    |

■ For Coil Voltage Codes refer Table on page 22

### DC Control

■ Standard voltages 24VDC , 110VDC , 220VDC

## Control Relay

| Aux Contact | Cat No.  | MRP [₹] |
|-------------|----------|---------|
| 2NO+2NC     | D16CR22* | 1310    |
| 3NO+1NC     | D16CR31* | 1310    |
| 4NO         | D16CR40* | 1310    |

\*Coil Codes :

| DC control |    |
|------------|----|
| 24V        | U1 |
| 48V        | W1 |
| 110V       | A1 |
| 220V       | B1 |
| 60V        | X1 |



## Control Relays Freedom Series

| Size | Contact Configuration     | Cat No.                             | MRP [₹] |      | Lot Size |
|------|---------------------------|-------------------------------------|---------|------|----------|
|      |                           |                                     | AC      | DC   |          |
| CR   | 2NO+2NC<br>3NO+1NC<br>4NO | D15CR22 ■<br>D15CR31 ■<br>D15CR40 ■ | 895     | 1310 | 1        |

■ For Coil Voltages Codes refer Table on page 22

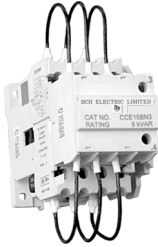


## Control Relays Citation - M Series

| Size | Control | Contact Configuration | Cat No.     | MRP [₹] | Lot Size |
|------|---------|-----------------------|-------------|---------|----------|
| CR   | DC      | 2NO+2NC               | DMD20CR22 ■ | 1690    | 1        |
|      | AC      | 4NO                   | MD20CR40 ■  | 1080    | 1        |
|      |         | 3NO+1NC               | MD20CR31 ■  |         |          |
|      |         | 2NO+2NC               | MD20CR22 ■  |         |          |

■ For Coil Voltages Codes refer Table on page 22

## Capacitor Switching



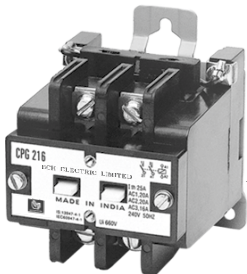
- Ideal solution for Switching single and multiple Capacitor banks upto 25 KVAR
- IP 20

## Duros Freedom Series Capacitor Duty AC Control

| Size | Capacitor KVAR at 415 V, 3 Ph, 50 Hz | Cat. No.    | MRP [₹] |
|------|--------------------------------------|-------------|---------|
| B    | 5                                    | CCE 15BN3 ■ | 1830    |
| D    | 10                                   | CCE 15DN3 ■ | 1950    |
| F    | 15                                   | CCE 15FN3 ■ | 2850    |
| H    | 25                                   | CCE 15HN3 ■ | 3770    |

■ For Coil Voltage Codes refer Table on page 22

## 2 Pole Contactors



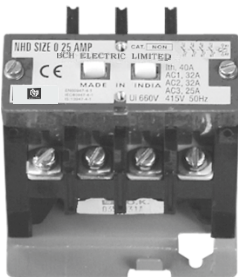
- 16, 25 and 40 A rating
- Wide termination space

## 2 Pole - 16, 25 and 40A

| Ith (A) | AC3 (A) 240V AC | Cat. No.  | MRP [₹] | Lot Size |
|---------|-----------------|-----------|---------|----------|
| 25      | 16              | CPG 216 ■ | 845     | 1        |
| 45      | 25              | CPG 225 ■ | 1185    |          |
| 50      | 40              | CPG 240 ■ | 1585    |          |

■ For Coil Voltage Codes refer Table on page 22

## 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

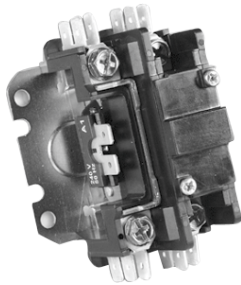
## 'NHD' Series 4 Pole AC Control

| Size                           | AC3 Rating at 415 V |     |    |         | Cat. No. | MRP [₹] | Lot Size |
|--------------------------------|---------------------|-----|----|---------|----------|---------|----------|
|                                | AC1 (A)             | (A) | HP | KW      |          |         |          |
| 00                             | 25                  | 16  | 10 | 7.5     | C00N ■   | 1550    | 1        |
| 0                              | 45                  | 25  | 15 | 11      | N0N ■    | 2565    |          |
| 1                              | 50                  | 40  | 25 | 18.5    | N1N ■    | 4065    |          |
| Auxiliary Contact Blocks - NHD |                     |     |    | 1NO+1NC | 001CB11  | 190     | 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 22

## Definite Purpose Contactors

Coil voltage:240VAC



- Quick connect plugin terminals
- Specially designed low VA coil

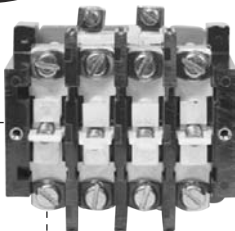


| AC3 (A)       | Type                | Cat. No.  | MRP [₹] |
|---------------|---------------------|-----------|---------|
| <b>1 Pole</b> |                     |           |         |
| 25            | 1 Pole              | CPD251CK  | 555     |
| 25            | 1 Pole with Neutral | CPD251NCK | 630     |
| 40            | 1 Pole              | CPD401CK  | 600     |
| 40            | 1 Pole with Neutral | CPD40NCK  | 725     |
| <b>2 Pole</b> |                     |           |         |
| 25            | 2P, 220-240VAC      | CPD252H   | 705     |
| 25            | 2P, 415VAC          | CPD252M   |         |
| 40            | 2P, 220-240VAC      | CPD402H   | 805     |
| 40            | 2P, 415VAC          | CPD402M   |         |

\*wide band AC coil voltages for definite purpose Contactor

| Contactor | Cat No. | Volatge    |            |             |
|-----------|---------|------------|------------|-------------|
|           |         | 170-240VAC | 290-415VAC | 140V-200VAC |
| 25A 1P    | CPD251* | KL         | ML         | BL          |

Proven & time tested

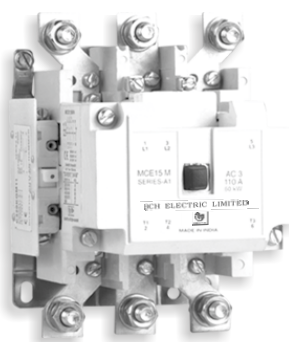


- Wider Terminal space for reliable & durable termination
- Front open design for ease of inspection

## Citation Series 3 Pole AC Control

| Size | AC3 Rating at 415 V |    |    | Cat. No.<br>(with Aux. contact<br>2NO+2NC) | MRP [₹] | Cat. No.<br>(without Aux. contact) | MRP [₹] |
|------|---------------------|----|----|--|---------|------------------------------------|---------|
|      | Amps                | HP | KW |  |         |                                    |         |
| C4   | 32                  | 20 | 15 | C4NE22 ■                                   | 4040    | C4NE00 ■                           | 3350    |
| D    | 40                  | 30 | 22 | MC10DN22 ■                                 | 6440    | MC10DN00 ■                         | 5630    |
| E    | 70                  | 50 | 37 | MC10EN22 ■                                 | 11550   | MC10EN00 ■                         | 11105   |

■ Standard coil voltages are 24, 110, 220, 240 & 415 VAC, 50 Hz. For voltage codes refer Table on page 22



| Size | AC1 Rating | AC3 Rating 415 V |     |     | Aux. Contact | Cat. No.      | MRP [₹] | Lot Size |
|------|------------|------------------|-----|-----|--------------|---------------|---------|----------|
|      |            | A                | HP  | KW  |              |               |         |          |
| L    | 140        | 80               | 53  | 40  | 1NO+1NC      | MCE15LN3 ■ 5  | 9700    | 1        |
| M    | 150        | 95               | 62  | 47  | 1NO+1NC      | MCE15M0N3 ■ 5 | 11650   |          |
| M-5  | 150        | 110              | 80  | 60  | 1NO+1NC      | MCE15MN3 ■ 5  | 13800   |          |
| N    | 300        | 140              | 100 | 75  | 1NO+1NC      | MCE15NN3 ■ 7  | 18350   |          |
| Q    | 300        | 185              | 120 | 90  | 1NO+1NC      | MCE15QN3 ■ 7  | 24045   |          |
| S    | 315        | 300              | 220 | 160 | 1NO+1NC      | MCE15SN3 ■ 7  | 36655   |          |

■ For Coil Voltage Codes refer Table on page 22

## Duros-Freedom Series contactors Add-on accessories for sizes A to K, CR, BCH15KT to BCH15PT, R, S0 & S





| Accessories   | Configuration                | Cat No.        | Contactor Type                 | MRP[₹] |
|---|------------------------------|----------------|--------------------------------|--------|
| Aux. Contact Block<br>(side Mounting)                         | 1NO                          | C320KGSR10     | CE15 & CR                      | 120    |
|   | 1NO+1NC                      | C320KGSR11     |                                | 305    |
|   | 1NC                          | C320KGSR01     |                                | 120    |
|   | 2NO                          | C320KGSR20     |                                | 305    |
|   | 1NO+1NC                      | BCH15S11       | BCH15                          | 450    |
|   | 1NO+1NC                      | MC320KB11      | MCE15R,<br>MCE15S0 &<br>MCE15S | 510    |
|   | 1NO+1NC<br>(Late break type) | MC320KAS11     |                                | 520    |
|   | 2NO+2NC                      | EF22           | BCH54 to BCH64                 | 4825   |
| 1NO+1NC   | EB11                         | BCH76 to BCH78 | 7500                           |        |
| 4th Neutral<br>Switching Pole                                 | 800A                         | NP800/5        | BCH54 to 57                    | 22000  |
|   | 1000A                        | NP1000/6       | BCH62 to 64                    | 26400  |
|   | 1000A                        | NP1000/7       | BCH76 to 78                    | 30100  |
| Aux. Contact<br>Block<br>(Front Mounting)                     | 1NO                          | C320KGTC10     | CE15, CR                       | 120    |
|   | 1NC                          | C320KGTC01     |                                |        |
|   | 2NO                          | C320KGT*20     |                                | 205    |
|   | 2NC                          | C320KGT*02     |                                |        |
|   | 1NO+1NC                      | C320KGT*11     | 370                            |        |
|   | 2NO+2NC                      | C320KGT*22     |                                |        |
|   | 3NO+1NC                      | C320KGT*31     |                                |        |
|   | 4NO                          | C320KGT*40     |                                |        |
|   | 1NO+3NC                      | C320KGT*13     | BCH15                          | 850    |
|   | 4NC                          | C320KGT*04     |                                |        |
| 4NO   | BCH15T40                     | 720            |                                |        |
| 3NO+1NC   | BCH15T31                     |                |                                |        |
| 2NO+2NC   | BCH15T22                     | 250            |                                |        |
| 1NO+1NC   | BCH15T11                     |                |                                |        |
| 1NO   | BCH15T10                     | 250            |                                |        |
| 1NC   | BCH15T01                     |                |                                |        |
| Pneumatic<br>Timer Block<br>"ON/OFF" Delay<br>site selectable | 1NO+1NC<br>(0.1 to 30 sec)   | C320TP1        | CE15 & CR                      | 1095   |
|   | 1NO+1NC<br>(0.1 to 180 sec)  | C320TP2        |                                |        |
| Mechanical<br>Interlocks                                      | -                            | C321KM60       | CE15 & CR                      | 350    |
|   | -                            | MC321KM3       | MCE15R to<br>MCE15S            | 1070   |
|   | Horizontal                   | BM5H           | BCH54 to 57                    | 6295   |
|   |                              | BM6H           | BCH62 to 64                    | 11180  |
|   |                              | BM7H           | BCH76 to 78                    | 29635  |
|   | Vertical                     | BM5V           | BCH54 to 57                    | 6325   |
|   |                              | BM6V           | BCH62 to 64                    | 11180  |
|   |                              | BM7V           | BCH76 to 78                    | 26285  |
|   | Horizontal                   | BM0H           | BCH15KT/LT/MT                  | 350    |
| BM3H  |                              | BCH15NT/PT     | 380                            |        |

\*Add suffix C for power contactors, R for control relays. The suffix C/R denote terminal marking as per standard EN5001 on BS5583 on add on aux. contact blocks used with contactors / control relays



## Add-on accessories for sizes A to K, CR, BCH15KT to BCH15PT, R, S0 & S

| Accessories   | Configuration                                     | Cat No.   | Contactor Type       | MRP [₹] |
|---|---|-----------|----------------------|---------|
| <br>Coil Surge Suppressors | 24-48V<br>(50/60Hz)                               | MC320LR11 | CE15, CR             | 340     |
|   | 110-240V<br>(50/60Hz)                             | MC320LR12 |                      |         |
| <br>Mechanical latch #     | § to complete<br>the cat no. suffix<br>code given | AM5- §    | BCH54 to BCH57       | 16265   |
|   |   | AM6- §    | BCH62 to BCH64       | 23010   |
| Terminal adapter kit  | 3 links with<br>m10 nut & bolt                    | SP37TA    | MCE15R,<br>MCE15S0 & | 820     |

# Mechanical latch are supplied with AC coils only

## § Coil Voltage suffix code for Mechanical latch AM5 & AM6

| Coil voltage | 110-120 | 220-240 | 380-415 | 440-480 |
|--------------|---------|---------|---------|---------|
| Suffix Code  | AW4     | BA4     | LB4     | CB4     |

## Accessories for Citation contactors size - L, M, M-5, N, Q, C4, D & E type

| Accessories                            | Configuration                  | Cat No.    | Contactor Type   | MRP[₹] |
|--|--------------------------------|------------|------------------|--------|
| Aux. block side mounting               | 1NO+1NC                        | C320KGM11  | L, M & M-5       | 480    |
|  | 1NO+1NC                        | MC320KB11  | N & Q            | 510    |
| Aux. block add-on<br>(Late break type) | 1NO+1NC                        | MC320KAS11 | L, M, M-5, N & Q | 520    |
|  | 1NO+1NC                        | AC34EA11   | C4, D & E        | 405    |
| Mechanical Interlock                   |                                | MC321KM1   | C4 & D           | 435    |
|  |                                | MC321KM2   | L, M, M-5 & E    | 480    |
|  |                                | MC321KM3   | N & Q            | 1070   |
| Terminal adapter kit                   | 3 links with<br>m10 nut & bolt | SP37TA     | N & Q            | 820    |
| Base block                             | 1NO+1NC                        | MC320KB2   | C4 & D           | 370    |
|  | 1NO+1NC                        | AC35EB11   | E                | 435    |

## Spare Contacts set for Duro Freedom Contactors

| Size    | Consisting of  | Cat. No.                              | MRP [₹] |
|---------|--|---------------------------------------|---------|
| A       | Complete top housing<br>Consisting of fixed & moving contacts  | SBANS3<br>SBANC3<br>SBAN4             | 675     |
| B       |  | SBBNS3<br>SBBNC3<br>SBBN4             | 715     |
| C       |  | SBCNS3<br>SBCNC3<br>SBCN4             | 785     |
| D       |  | SBDN3                                 | 950     |
| E       |  | SBEN3                                 | 1120    |
| F       |  | SBFN3                                 | 2200    |
| G       |  | 6 Fixed contacts<br>3 Moving Contacts | 6-65-4  |
| H       | 3 springs  | 6-65-6                                | 2415    |
| J       | 6 Arc Bonnets  | 6-65-15                               | 3280    |
| K       | 3 Spring Retainer  | 6-65-17                               | 3390    |
| BCH15KT | Complete set of 6 fixed & 3 moving contacts with hardware, contact springs, spring retainers and arc runners | CP-BCH15KT-3                          | 3350    |
| BCH15LT |  | CP-BCH15LT-3                          | 3850    |
| BCH15MT |  | CP-BCH15MT-3                          | 4150    |
| BCH15NT |  | CP-BCH15NT-3                          | 6850    |
| BCH15PT |  | CP-BCH15PT-3                          | 6850    |
| R       | 6 Fixed contacts<br>3 Moving contacts<br>12 CSK screws & washers   | 6-288                                 | 11965   |
| S0      | 3 Springs<br>Spring retainers<br>Self tapping screws & washers   | 6-286-S0                              | 16160   |
| S       | 6 Arc Chute assly & screws   | 6-286                                 | 16310   |
| BCH54   | Complete set of 6 fixed & 3 moving contacts with hardware, contact springs, spring retainers and arc runners | CP-BCH54-3                            | 18845   |
| BCH55   |  | CP-BCH55-3                            | 21910   |
| BCH57   |  | CP-BCH57-3                            | 30990   |
| BCH62   |  | CP-BCH62-3                            | 57610   |
| BCH64   |  | CP-BCH64-3                            | 70825   |
| BCH76   |  | CP-BCH76-3                            | 176910  |
| BCH78   |  | CP-BCH78-3                            | 198805  |

## Spare Contacts set for NHD & Citation Contactors

| Size                       | Consisting of  | Cat.No.                             | MRP [₹]             |
|----------------------------|--|-------------------------------------|---------------------|
| C00N<br>N0N<br>N1N         | 8 Fixed main contacts<br>4 Moving main contacts<br>4 Spring & 4 retainers            | SP90A1<br>SP90B1<br>SP90C1          | 790<br>1920<br>2010 |
| CPG216<br>CPG225<br>CPG240 | 4 Fixed contacts<br>2 Main contacts<br>2 Spring retainers                            | CPG162PSP<br>CPG252PSP<br>CPG402PSP | 390<br>995<br>1100  |
| C4                         | 6 Fixed main contacts<br>6 Pan head screws<br>6 Helical lock washers                 | SP34K                               | 1890                |
| MC10D                      | 6 Fixed Main Contacts<br>3 Compression springs<br>3 Retainers                        | 6-334                               | 2580                |
| MC10E                      | Same as above plus 6 Blow outs<br>6 M5/M4 self tapping screws                        | 6-335                               | 4875                |
| L                          | 6 Fixed Contacts<br>6 Pan Head Screws  | 6-385-L0                            | 3750                |
| M                          | 6 Helical Lock Washers<br>3 Moving contacts<br>3 Springs                             | 6-385-M                             | 3970                |
| M-5                        | 3 Retainers<br>6 Blowouts<br>6 self tapping screws                                   | 6-385                               | 4185                |
| N                          | 6 Fixed contacts<br>12 CSK screws & washers  | 6-293                               | 8260                |
| Q                          | 3 Moving contacts<br>3 Springs<br>Spring Retainers,<br>Self tapping screws & Washers | 6-288-Q                             | 11900               |

## Spare ARC chambers - BCH15KT to BHC15PT, BCH54 to BCH78

| Contactors                             | Cat. No.   | MRP [₹] |
|--|------------|---------|
| BCH15KT                                | PF-BCH15KT | 485     |
| BCH15LT                                | PF-BCH15LT |         |
| BCH15MT                                | PF-BCH15MT |         |
| BCH15NT                                | PF-BCH15NT | 850     |
| BCH15PT                                | PF-BCH15PT |         |
| BCH54/BCH55/BCH57<br>(for all 3 poles) | PF-BCH5    | 6585    |
| BCH62/BCH64<br>(for all 3 poles)       | PF-BCH6    | 16380   |
| BCH76/78<br>(for single pole)          | 3PF-BCH78  | 35300   |

## Spare Coil - size CR, A to K, MCE15R, MCE15S0, MCE15S, BCH15KT to BCHPT, BCH54 to BCH78

| Size   | For Size               | Cat. No.  | MRP [₹] |
|--|------------------------|-----------|---------|
| Magnetic coil  | CR, A,B, C             | MC15CW ■  | 370     |
|  | D, E, F                | MC15FW ■  | 430     |
|  | G, H, J, K             | MC15KW ■  | 1120    |
|  | BCH15KT/LT             | B02. ■    | 1110    |
|  | BCH15MT                | B022. ■   | 1650    |
|  | BCH15NT/PT             | B031. ■   | 3300    |
|  | R, S0, S               | 9-2412- ■ | 3060    |
| Magnetic coil (set of two)   | BCH54/ BCH55/<br>BCH57 | B51. ■    | 6385    |
| Feeder group   |                        | FG51. ■   | 7730    |
| Magnetic coil (set of two)   | BCH62/ BCH64           | B61. ■    | 20210   |
| Feeder group   |                        | FG61. ■   | 26315   |
| Magnetic coil (set of two)   | BCH76/ BCH78           | B8- ■     | 55990   |
| Feeder group   |                        | FG78- ■   | 61590   |
| ■ To specify coil voltage please refer page no. 22   |                        |           |         |
| Note : Coil set for BCH54 to BCH78 contactors consists of 2 half coils. Magnetic coil & Feeder group must have the same control voltage. For eg. If coil voltage is changed from 110V to 220V then Feeder group should also be changed to 220V |                        |           |         |

## Spare Coil - NHD & Citation Contactors

| Description  | Cat. No.    | MRP [₹] | Lot size |
|--|-------------|---------|----------|
| Carrier for NHD                                    | SP90CC      | 180     | 1        |
| Carrier for CPG                                    | CPG2PCC     | 105     | 1        |
| Magnetic coil for NHD                              | SP90MC      | 260     | 10       |
| Magnetic coil for MCE15L, MCE15M0, MCE15M          | 9-2268- ■   | 1390    | 1        |
| Magnetic coil for MCE15N & MCE15Q                  | 9-2412- ■   | 3060    | 1        |
| Magnetic coil for C4 & MC10D                       | 9-2267- ■   | 865     | 1        |
| Magnetic coil for MC10E type                       | 9-2268- ■   | 1390    | 1        |
| Magnetic coil for DC Citation Control Relay        | 9-2182-1- ■ | 500     | 1        |
| Magnetic coil for AC Citation Control Relay        | 9-2182- ■   | 635     | 1        |
| ■ To specify coil voltage please refer page no. 22 |             |         |          |

# Coil Voltage Table

BCH

## COIL VOLTAGE: MASTER TABLE

| PRODUCT      | 24V |    | 48V |    | 55V | 110V |     | 160-220V | 220V | 220-240V | 230-360V | 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    | -  |
| 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    | -  |
| BCH15KT-LT   | U   | -  | W   | -  | -   | A    | -   | -        | B    | -        | -        | K    | -    | -    | -        | -        | L    | -        | M    | C    | D    | -  |
| BCH15MT-PT   | 24  | -  | -   | -  | -   | 110  | -   | -        | -    | 220      | 220      | -    | -    | -    | -        | -        | -    | 380      | -    | 440  | 550  | -  |
| MC15R-S      | U   | U3 | -   | -  | -   | A    | A3  | -        | B    | -        | -        | K    | -    | -    | -        | -        | L    | -        | M    | -    | D    | -  |
| BCH54-64     | -   | -  | -   | -  | -   | 110  | 110 | -        | 220  | 220      | -        | 220  | -    | -    | -        | -        | 380  | 380      | 380  | 440  | -    | -  |
| BCH76&78     | -   | -  | -   | -  | -   | A7   | A17 | -        | B7   | -        | H        | -    | -    | -    | -        | -        | -    | -        | -    | -    | -    | -  |
| CPG216       | U   | -  | -   | -  | -   | A    | -   | BW       | -    | H        | -        | -    | -    | -    | -        | G        | -    | N        | -    | C    | -    | -  |
| CPG225&240   | U   | -  | -   | -  | -   | A    | -   | -        | -    | H        | -        | -    | -    | -    | -        | -        | -    | N        | -    | C    | -    | -  |
| SHAKTI       | -   | -  | -   | -  | -   | -    | -   | -        | -    | -        | -        | -    | -    | -    | Z        | -        | -    | N        | -    | C    | -    | -  |
| C00N-N0N     | U   | -  | -   | -  | -   | A    | -   | BW       | -    | H        | LV       | -    | -    | -    | -        | G        | -    | N        | -    | C    | -    | -  |
| N1N          | U   | -  | -   | -  | -   | A    | -   | -        | -    | H        | -        | -    | -    | -    | -        | -        | -    | N        | -    | C    | -    | -  |
| C4 & D       | -   | -  | -   | -  | -   | A    | -   | -        | B    | -        | -        | K    | -    | -    | -        | -        | L    | -        | M    | C    | -    | -  |
| MC10EN       | U   | -  | -   | -  | -   | A    | -   | -        | B    | -        | -        | K    | -    | -    | -        | -        | L    | -        | M    | C    | D    | -  |
| MC15L-M5     | U   | -  | W   | -  | -   | A    | -   | -        | B    | -        | -        | -    | -    | -    | -        | L        | -    | M        | C    | D    | -    | -  |
| MC15N-Q      | U   | U3 | -   | -  | -   | A    | A3  | -        | B    | -        | -        | -    | -    | -    | -        | L        | -    | M        | -    | D    | -    | -  |
| MD20CR       | U   | -  | -   | -  | -   | A    | -   | -        | B    | -        | -        | K    | -    | -    | -        | -        | L    | -        | M    | -    | -    | -  |
| 912X         | -   | U1 | -   | -  | Q1  | A1R  | A1  | -        | -    | B1       | -        | K1R  | F1   | -    | -        | -        | -    | -        | -    | -    | -    | D1 |
| 914;934X     | -   | U1 | -   | W1 | Q1  | A1R  | A1  | -        | -    | B1       | -        | K1R  | F1   | J1   | -        | -        | -    | -        | -    | -    | -    | D1 |
| 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   | -    | -        | -        | -    | -        | -    | -    | -    | -  |

1. For other coil voltages & wide band coil option please contact nearest sales office

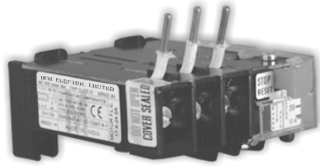
2. AC control is not available for 934, 935, 936 versions.

3. 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.



*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
- Contacting 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

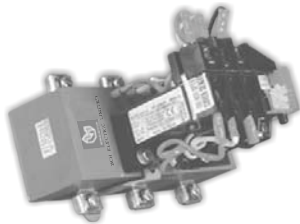
| Relay Range   | Cat. No.    | MRP [₹] | Terminal Block for individual mounting | MRP [₹] |
|---------------|-------------|---------|--|---------|
| 0.195 - 0.31  | MC305ANA3A  | 1240    | Incoming<br>MC305TB1                   | 80      |
| 0.30 - 0.48   | MC305ANA3B  |         |  |         |
| 0.47 - 0.75   | MC305ANA3C  |         |  |         |
| 0.72 - 1.14   | MC305ANA3D  |         |  |         |
| 1.07 - 1.70   | MC305ANA3E  |         |  |         |
| 1.58 - 2.50   | MC305ANA3F  |         |  |         |
| 2.40 - 3.80   | MC305ANA3G  |         |  |         |
| 3.80 - 6.00   | MC305ANA3H  |         |  |         |
| 6.00 - 9.30   | MC305ANA3J  |         |  |         |
| 8.90 - 13.50  | MC305ANA3K  |         |  |         |
| 13.20 - 20.00 | MC305ANA3L  | 1340    | Incoming<br>MC305TB2                   | 80      |
| 17.40 - 24.00 | MC305ANA3M  | 1340    | Outgoing<br>MC305TB3                   | 80      |
| 22.00 - 30.00 | MC305ANA3N* | 1820    |  |         |

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

## DIN rail mounting kit with incoming terminal block

| Relay Range (A) | Cat. No. | MRP [₹] |
|-----------------|----------|---------|
| A to K          | MC305DM1 | 170     |
| L to N          | MC305DM2 | 170     |

## CT Operated Overload Relay



## CT Operated Overload Relays-Individual Mounting

| Relay Range (A) | Cat. No.      | MRP [₹] |
|-----------------|---------------|---------|
| 24.4-39.0       | CT1MC305ANA3C | 1900    |
| 37.6-60.0       | CT2MC305ANA3C | 2510    |
| 56.4-90.0       | CT3MC305ANA3C | 3500    |
| 84.6-135.0      | CT4MC305ANA3C |         |
| 131.6-210.0     | CT5MC305ANA3C | 6890    |
| 188.0-300.0     | CT6MC305ANA3C | 7890    |
| 263.2-420.0     | CT7MC305ANA3C | 8590    |
| 376.0-600.0     | CT8MC305ANA3C | 9100    |

## WP 2 Pole Overload Relay

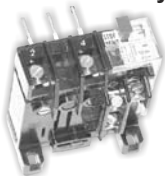


- Perfect protection to single phase Motors against overloads
- Ambient temperature compensated

## 2 Pole Overload Relays (Direct Mounting)

| Relay Range (A) | Cat. No.   | MRP [₹] |
|-----------------|------------|---------|
| 1.58-2.50       | MC307ANA2F | 605     |
| 2.40-3.80       | MC307ANA2G |         |
| 3.80-6.00       | MC307ANA2H |         |
| 6.00-9.30       | MC307ANA2J |         |
| 8.90-13.50      | MC307ANA2K |         |
| 13.20-20.00     | MC307ANA2L | 700     |
| 17.40-24.00     | MC307ANA2M | 850     |
| 23.00-32.00     | MC307ANA2P |         |

## 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 [₹] |
|-----------------|-------------------------------------|---------|
| 6.00 - 9.30     | MC307ANA3J / MC307ANA3J-OS          | 1090    |
| 8.90 - 13.50    | MC307ANA3K / MC307ANA3K-OS          |         |
| 13.20 - 20.00   | MC307ANA3L / MC307ANA3L-OS          | 1205    |
| 17.40 - 24.00   | MC307ANA3M / MC307ANA3M-OS          |         |
| 22.00 - 30.00   | MC307ANA3N                          | 1580    |
| 23.00 - 32.00   | MC307ANA3P (Spare for Oil Starter)  | 1600    |

## Duros Freedom Overload Relay



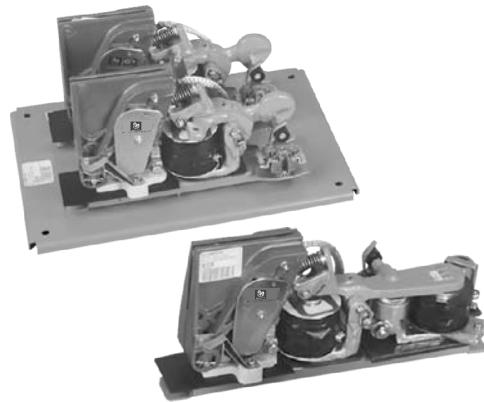
- Range : From 0.1A to 32A
- IEC:60947-4-1
- Relay class-10
- Built in Single Phasing Protection
- Ambient temperature compensated
- Test button for checking tripping mechanism
- Field convertible auto manual reset
- Contactor mounting

## Freedom Overload Relays

| Relay Range (A) | Cat. No.   | MRP [₹] | Accessories   |
|-----------------|------------|---------|---|
| 0.1-0.16        | MC318ANA3A | 1275    | Adaptor for Individual mounting<br>Cat. No. <b>C318F1</b><br><br>MRP<br>Rs. 260 |
| 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 | 1880    |   |

## DC Mill Duty Contactor

| No. of poles   | (A)               | Auxiliary Contacts            | Cat. No.                                  | MRP [₹] |
|--|-------------------|-------------------------------|---|---------|
| <b>50 Amperes</b>  |                   |                               |   |         |
| Single pole<br>Normally<br>Open                          | 15A<br>25A<br>50A | 2NO+2NC<br>2NO+2NC<br>2NO+2NC | 912x1522 ■<br>912x2522 ■<br>912x5022 ■    | 22525   |
| Double pole<br>Normally<br>Open                          | 15A<br>25A<br>50A | 2NO+2NC<br>2NO+2NC<br>2NO+2NC | D912x1522 ■<br>D912x2522 ■<br>D912x5022 ■ | 48430   |
| Mechanically<br>Interlocked<br>2 Nos. SP NO              | 15A<br>25A<br>50A | 2NO+2NC<br>2NO+2NC<br>2NO+2NC | M912x1522 ■<br>M912x2522 ■<br>M912x5022 ■ | 53725   |
| <b>150 Amperes</b>                                       |                   |                               |   |         |
| Single pole<br>Normally<br>Open                          | 150A              | 2NO+2NC                       | 914x22 ■                                  | 38475   |
| Double pole<br>Normally<br>Open                          | 150A              | 2NO+2NC                       | D914x22 ■                                 | 82500   |
| Mechanically<br>Interlocked<br>2 Nos. SP NO              | 150A              | 2NO+2NC                       | M914x22 ■                                 | 87065   |
| Single pole<br>Normally<br>Closed                        | 150A              | 1NO+1NC                       | 924x11 ■                                  | 39630   |
| Single pole<br>Normally Open<br>with Holdout<br>Coil #   | 150A              | 1NO+1NC                       | 934x11 ■                                  | 41725   |
| Single pole<br>Normally<br>Open with AC<br>Blow out Coil | 150A              | 2NO+2NC                       | 974x22 ■                                  | 48780   |
| <b>300 Amperes</b>                                       |                   |                               |   |         |
| Single pole<br>Normally<br>Open                          | 300A              | 2NO+2NC                       | 915x22 ■                                  | 55870   |
| Double pole<br>Normally Open                             | 300A              | 2NO+2NC                       | D915x22 ■                                 | 119000  |
| Mechanically<br>Interlocked<br>2 Nos. SP NO              | 300A              | 2NO+2NC                       | M915x22 ■                                 | 123725  |
| Single pole<br>Normally Closed                           | 300A              | 1NO+1NC                       | 925x11 ■                                  | 56160   |
| Single pole<br>Normally Open<br>with Holdout<br>Coil #   | 300A              | 1NO+1NC                       | 935x11 ■                                  | 60635   |
| Single pole<br>Normally<br>Open with AC<br>Blow out Coil | 300A              | 2NO+2NC                       | 975x22 ■                                  | 70655   |



- 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)  | Auxiliary Contacts | Cat. No.  | MRP [₹] |
|--|------|--------------------|-----------|---------|
| <b>600 Amperes</b>                                       |      |                    |           |         |
| Single pole<br>Normally<br>Open                          | 600A | 2NO+2NC            | 916x22 ■  | 124535  |
| Double pole<br>Normally<br>Open                          | 600A | 2NO+2NC            | D916x22 ■ | 258595  |
| Mechanically<br>Interlocked<br>2 Nos. SP NO              | 600A | 2NO+2NC            | M916x22 ■ | 262780  |
| Single pole<br>Normally<br>Closed                        | 600A | 1NO+1NC            | 926x11 ■  | 128010  |
| Single pole<br>Normally<br>Open with<br>Holdout Coil#    | 600A | 1NO+1NC            | 936x11 ■  | 158220  |
| Single pole<br>Normally<br>Open with AC<br>Blow out Coil | 600A | 2NO+2NC            | 976x22 ■  | 156840  |

# 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. 2260/- for AC Control

## Double Pole DC Mill Duty Contactor

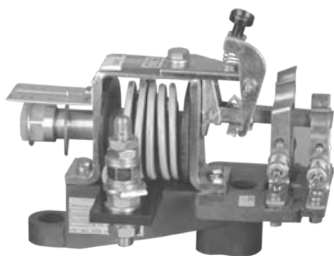
| A    | Auxiliary Contacts | Cat. No. | Unit Price [₹]                     |
|------|--------------------|----------|------------------------------------|
| 150A | 2NO+2NC            | 954x22 ■ | Contact Branch office<br>for Price |
| 300A | 2NO+2NC            | 955x22 ■ |                                    |

## DC Mill Duty Contactors - Spares

| Description  | Qty. Reqd. | 50A      |         | 150A     |         | 300A     |         | 600A     |         |
|--|------------|----------|---------|----------|---------|----------|---------|----------|---------|
|  |            | Cat. No. | MRP [₹] | Cat. No. | MRP [₹] | Cat. No. | MRP [₹] | Cat. No. | MRP [₹] |
| DC Arc Chute Assy. Consisting of<br>a. LH Arc Shield<br>b. RH Arc Shield<br>c. DC Blow Out Arc Horn<br>d. DC Blow Out Arc Piece<br>e. DC Blow Out Spacer Assy.<br>f. Polarity Wire<br>g. Latch Strips (Top & Bottom)<br>h. Hardware for Polarity Wire & Latch    | 1 Set      | 9C9J101* | 11405   | 9C9P101  | 19540   | 9C9T101  | 28330   | 9C9V101  | 61680   |
| AC Arc Chute Assy. Consisting of<br>a. LH Arc Shield<br>b. RH Arc Shield<br>c. AC Blow Out Pole Piece<br>d. AC Blow Out Spacer Assy.<br>e. Polarity Wire<br>f. Latch Strips (Top & Bottom)<br>g. Hardware for Polarity Wire & Latch                              | 1 Set      | -        | -       | 9C9P102  | 32795   | 9C9T102  | 46855   | 9C9V102  | 103030  |
| AC/DC LH Arc Shield  | 1          | 9C9J103  | 4265    | 9C9P103  | 7400    | 9C9T103  | 10300   | 9C9V103  | 23400   |
| AC/DC RH Arc Shield  | 1          | 9C9J104  | 4265    | 9C9P104  | 7400    | 9C9T104  | 10300   | 9C9V104  | 23400   |
| Fixed & Moving Contacts  | 1 Set      | 9C9J105  | 2465    | 9C9P105  | 3400    | 9C9T105  | 5515    | 9C9V105  | 15040   |
| Contact Lever with Braid   | 1 Set      | 9C9J106  | 3005    | 9C9P106  | 4905    | 9C9T106  | 6495    | 9C9V106  | 11285   |
| Set of Armature Spares Consisting of<br>a. Adjusting Pin<br>b. Contact lever spring<br>c. Contact lever spring pin with circlip<br>d. Armature hinge pin<br>e. Armature Securing pin   | 1 Set      | 9C9J107  | 1060    | 9C9P107  | 1475    | 9C9T107  | 2135    | 9C9V107  | 3105    |
| Set of Armature Spares for 924, 925, 926 Consisting of<br>a. Adjusting Pin<br>b. Contact lever spring<br>c. Contact lever spring pin with circlip<br>d. Armature hinge pin<br>e. Armature Securing pin<br>f. Armature spring<br>g. Spring retaining washer       | 1 Set      | -        | -       | 9C9P108  | 1805    | 9C9T108  | 2680    | 9C9V108  | 3855    |
| Set of Armature Spares for 934/935/936 Consisting of<br>a. Adjusting pin<br>b. Contact lever spring<br>c. Contact lever hinge pin<br>d. Armature hinge pin<br>e. Armature securing pin<br>f. Armature spring<br>g. Spring retaining washer<br>h. Adjusting screw | 1 Set      | -        | -       | 9C9P109  | 2155    | 9C9T109  | 3190    | 9C9V109  | 4090    |
| Terminal Block   | 1          | 9C9J110  | 1370    | 9C9P110  | 1805    | 9C9T110  | 2530    | 9C9V110  | 3160    |
| No Volt Coil for 912, 914, 915, 916, 934, 935 & 936<br>**Suffix voltage code   | 1          | 9C9J111■ | 5105    | 9C9P111■ | 7820    | 9C9T111■ | 10300   | 9C9V111■ | 17750   |
| No Volt Coil for 924, 925, 926<br>**Suffix voltage code  | 1          | -        | -       | 9C9P112■ | 10300   | 9C9T112■ | 16010   | 9C9V112■ | 25860   |
| Coil clamp for 914 & 934   | 1          | -        | -       | 9C9P118  | 185     | -        | -       | -        | -       |
| Coil clamp for 924, 915, 935, 916 & 936  | 1          | -        | -       | 9C9P118  | 185     | 9C9T118  | 185     | 9C9V118  | 335     |

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





- 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 [₹] |
|---|-------------------|---------|
| 1NO+1NC Auxilliary Contact Block                  | AC10E11           | 4535    |
| 2NO Auxilliary Contact Block                      | AC10E20           | 4535    |
| 2NC Auxilliary Contact Block                      | AC10E02           | 4535    |
| Single unit driver with mounting plate (50 A)     | 9C9J115           | 705     |
| Double unit driver with mounting plate (50 A)     | 9C9J116           | 1025    |
| Single unit driver with mounting plate (150-600A) | 9C9P116           | 755     |
| Double unit driver with mounting plate (150-600A) | 9C9P117           | 1115    |
| Hold out coil for 934, 935 & 936                  | 9C9P113 ■         | 12430   |
| Condenser 50 + 50uF for 934, 935 & 936            | 9C9P114           | 760     |
| Mechanical interlock for 150/300/600A             | AC10M4/<br>M8/M12 | 5055    |
| Rectifier 110/240 V                               | SP30R             | 2550    |

■ Suffix voltage code from Table on page 20

## DC Magnetic Overload Relays \*

| Cat. No. | Coil No. | Continuous Rating | Range Amps  | MRP [₹] |
|----------|----------|-------------------|-------------|---------|
| B3A23    | 159-10   | 2.8               | 1.5 to 3.5  | 13190   |
| 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   |         |
| B3L23    | 179-38   | 109.0             | 70 to 190   |         |
| B3M23    | 179-37   | 179.0             | 100 to 300  |         |
| B3N23    | 179-36   | 250.0             | 200 to 600  | 16850   |
| B3Y23    | 179-36.2 | 199.0             | 200 to 600  |         |
| B3P23    |          | 549.0             | 300 to 900  | 20495   |
| 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 |

# Electronic Overcurrent Relay ..... BCH

## Bhartia Electronic Overcurrent Relay

### BOCR SS



- Over Current
- Locked Rotor
- Phase Loss

### BOCR SSD



- Over Current
- Locked Rotor
- Phase Loss

### BOCR DS3



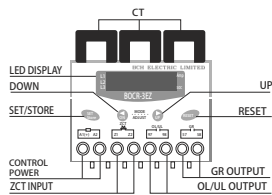
- Over Current
- Locked Rotor
- Phase Loss
- Phase Reversal

### BOCR 3DE



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

### BOCR 3EZ



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

| Model       | Cat. No.     | Range   | MRP [₹] |
|-------------|--------------|---|---------|
| BOCR SS 05  | MP21SS005S4  | Electronic Over Current Relay 0.5-6A 24-240V AC /DC | 3090    |
| BOCR SS 05  | MP21SS005W1  | Electronic Over Current Relay 0.5-6A 320-480V AC    |         |
| BOCR SS 30  | MP21SS030S4  | Electronic Over Current Relay 3-30A 24-240V AC/DC   |         |
| BOCR SS 30  | MP21SS030W1  | Electronic Over Current Relay 3-30A 320-480V AC     |         |
| BOCR SS 60  | MP21SS060S4  | Electronic Over Current Relay 5-60A 24-240V AC/DC   |         |
| BOCR SS 60  | MP21SS060W1  | Electronic Over Current Relay 5-60A 320-480V AC     |         |
| BOCR SSD 05 | MP22SSD005A4 | Electronic Over Current Relay 0.5-6A 110V AC        | 5950    |
| 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 | MP34DS3005S4 | Electronic Over Current Relay 0.5-6A 24-240V AC/DC  | 4950    |
| BOCR DS3 05 | MP34DS3005S4 | Electronic Over Current Relay 0.5-6A 24-240V AC/DC  |         |
| BOCR DS3 30 | MP34DS3030S4 | Electronic Over Current Relay 3-30A 24-240V AC/DC   |         |
| BOCR DS3 30 | MP34DS3030S4 | Electronic Over Current Relay 3-30A 24-240V AC/DC   |         |
| BOCR DS3 60 | MP34DS3060S4 | Electronic Over Current Relay 5-60A 24-240V AC/DC   |         |
| BOCR DS3 60 | MP34DS3060S4 | Electronic Over Current Relay 5-60A 24-240V AC/DC   |         |
| BOCR 3DE    | MP353DE800A4 | Electronic Over Current Relay 0.5-60A 110V AC       | 17050   |
| BOCR 3DE    | MP353DE800B4 | Electronic Over Current Relay 0.5-60A 220V AC       |         |
| BOCR 3DE*   | MP35FDE800A4 | Detachable Screen EOCR Model 3DE<br>0.5-60A 110 VAC | 16890   |
| BOCR 3DE*   | MP35FDE800B4 | Detachable Screen EOCR Model 3DE<br>0.5-60A 220 VAC |         |
| BOCR 3EZ    | MP363EZ800A4 | Electronic Over Current Relay 0.5-60A 110V AC       | 18200   |
| BOCR 3EZ    | MP363EZ800B4 | Electronic Over Current Relay 0.5-60A 220V AC       |         |
| BOCR 3EZ*   | MP36FEZ800A4 | Detachable Screen EOCR Model 3E2<br>0.5-60A 110VAC  | 18240   |
| BOCR 3EZ*   | MP36FEZ800B4 | Detachable Screen EOCR Model 3E2<br>0.5-60A 220VAC  |         |

## CTs

| Cat No.   | Description            | MRP [₹] |
|---|------------------------|---------|
| 3CT-H1-100-C  | 3CT version 100/5      | 2740    |
| 3CT-HH-150-C  | 3CT version 150/5      | 2740    |
| 3CT-H2-200-C  | 3CT version 200/5      | 2740    |
| 3CT-H3-300-C  | 3CT version 300/5      | 2740    |
| 3CT-H4-400-C  | 3CT version 400/5      | 2740    |
| Z-CTs (For ground Fault protection, to be used with 3 EZ) |                        |         |
| Cat No.   | Description            | MRP [₹] |
| ZCT-035   | ZCT version 35mm hole  | 3120    |
| ZCT-080   | ZCT version 80mm hole  | 4160    |
| ZCT-120   | ZCT version 120mm hole | 6420    |

Above 60A, external CT is required

## \*Cable for EOCR-FDE & EOCR-FEZ model

| Cat No.       | Description            | MRP [₹] |
|---------------|------------------------|---------|
| CABLE-15-003Q | CABLE-15-EP 3M FEZ/FDE | 590     |

Note : Cable must be ordered separately along with the EOCR detachable models i.e. EOCR-FDE & EOCR-FEZ

## MPCB (with thermal & magnetic release)



- 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

| Cat ref | Setting Range (A) | Motor Rating in kW at 415 V | MRP [₹] |
|---------|-------------------|-----------------------------|---------|
| MPE-01  | 0.1...0.16        | -                           | 2300    |
| MPE-02  | 0.16...0.25       | 0.06                        |         |
| MPE-03  | 0.25...0.4        | 0.12                        |         |
| MPE-04  | 0.4...0.63        | 0.18                        | 2540    |
| MPE-05  | 0.63...1          | 0.25, 0.37                  |         |
| MPE-06  | 1...1.6           | 0.55                        | 2580    |
| MPE-07  | 1.6...2.5         | 0.75, 1.1                   |         |
| MPE-08  | 2.5...4           | 1.5                         | 2640    |
| MPE-10  | 4...6.3           | 2.2, 3                      |         |
| MPE-14  | 6.3...10          | 4, 5                        | 2770    |
| MPE-16  | 10...16           | 5.5, 9                      | 3010    |
| MPE-20  | 16...20           | 11                          | 3410    |
| MPE-22  | 20...25           | 12.5                        | 3690    |



## Accessories



| Reference         | Contacts              | MRP [₹] |
|-------------------|-----------------------|---------|
| Auxiliary         |                       | 350     |
| Switch            |                       |         |
| MPA 0010          | 1NO                   |         |
| MPA 0001          | 1NC                   |         |
| MPA 0011          | 1NO + 1NC             | 510     |
| MPA 0020          | 2NO                   |         |
| Enclosures (IP55) |                       | 760     |
| MPA-EF            | Flush mounted         |         |
| MPA-ES            | Surface mounted       | 840     |
| Voltage Releases  |                       | 1200    |
| MPA-U ■           | Under Voltage Release |         |
| MPA-S ■           | Shunt Release         |         |

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

| Reference | Tap-o *        | MRP [₹] |
|-----------|----------------|---------|
| Bus Bar   |                | 515     |
| MPA-BB245 | 2 Tap-o (45mm) |         |
| MPA-BB345 | 3 Tap-o (45mm) |         |
| MPA-BB445 | 4 Tap-o (45mm) |         |
| MPA-BB545 | 5 Tap-o (45mm) |         |
| MPA-BB263 | 2 Tap-o (63mm) |         |
| MPA-BB463 | 4 Tap-o (63mm) |         |
| MPA-BB1   | Incoming Block |         |

\*centre to centre distance.

## Solid State Relays (SSR) Single Phase SSR's for Heating Applications SC9 Series 1-Phase ZERO CROSS Without LED

| Cat. No.  | MOQ | AC51 Rating | $I^2t$ (A <sup>2</sup> S) | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹] |
|-----------|-----|-------------|---------------------------|--------------|-------------------|-----------------|---------|
| SC941110L | 10  | 12A         | 72                        | 600V AC      | 12-280V AC        | 4-30V DC        | 1180    |
| SC942110L | 10  | 25A         | 288                       | 600V AC      | 12-280V AC        | 4-30V DC        | 1380    |
| SC944110L | 10  | 40A         | 612                       | 600V AC      | 12-280V AC        | 4-30V DC        | 1780    |

MOQ - Minimum Order Qty.



- 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

## SC9 Series 1-Phase ZERO CROSS With LED

| Cat. No.  | MOQ | AC51 Rating | $I^2t$ (A <sup>2</sup> S) | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹] |
|-----------|-----|-------------|---------------------------|--------------|-------------------|-----------------|---------|
| SC941160L | 10  | 12A         | 72                        | 600V AC      | 12-280V AC        | 4-30V DC        | 1190    |
| SC942160L | 10  | 25A         | 288                       | 600V AC      | 12-280V AC        | 4-30V DC        | 1400    |
| SC944160L | 10  | 40A         | 612                       | 600V AC      | 12-280V AC        | 4-30V DC        | 1810    |
| SC945160L | 10  | 50A         | 1500                      | 600V AC      | 12-280V AC        | 4-30V DC        | 3700    |
| SC947160L | 10  | 75A         | 5000                      | 600V AC      | 12-280V AC        | 4-30V DC        | 4120    |

MOQ - Minimum Order Qty.

## SC9 Series 1-Phase ZERO CROSS With LED

| Cat. No.  | MOQ | AC51 Rating | $I^2t$ (A <sup>2</sup> S) | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹] |
|-----------|-----|-------------|---------------------------|--------------|-------------------|-----------------|---------|
| SC962160L | 10  | 25A         | 265                       | 1200V AC     | 24-600V AC        | 5-30V DC        | 4990    |
| SC965160L | 10  | 50A         | 1500                      | 1200V AC     | 24-600V AC        | 5-30V DC        | 6280    |
| SC967160L | 10  | 75A         | 5000                      | 1200V AC     | 24-600V AC        | 5-30V DC        | 9800    |

MOQ - Minimum Order Qty.



## SO9 Series 1-Phase ZERO CROSS With LED in okpac® Housing IP20 Protection

| Cat. No.  | MOQ | AC51 Rating | $I^2t(A^2S)$ | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹] |
|-----------|-----|-------------|--------------|--------------|-------------------|-----------------|---------|
| SO942560* | 10  | 25A         | 600          | 600V AC      | 12-280V AC        | 7-30V DC        | 3150    |
| SO963460* | 10  | 35A         | 1250         | 1200V AC     | 24-600V AC        | 3.5-32V DC      | 3770    |
| SO945460* | 10  | 50A         | 2500         | 600V AC      | 12-280V AC        | 3-32V DC        | 4200    |
| SO967460* | 10  | 75A         | 7200         | 1200V AC     | 24-600V AC        | 3.5-32V DC      | 4850    |

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

MOQ - Minimum Order Qty.

### Innovation - Performance- Design

- Removable IP20 flaps.
- Only 29 mm height.
- Designed for all types of loads.
- TMS<sup>2</sup> Technology with very long life expectancy.
- Control Status LED.
- Very low zero cross level.
- UL/cUL, VDE (EN60950), IEC/EN60947-4-3, CE marking



## SU9 Series 1-Phase ZERO CROSS With LED in okpac® Housing IP20 Protection



| Cat. No.  | MOQ | AC51 Rating | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹]    |
|-----------|-----|-------------|--------------|-------------------|-----------------|------------|
| SU942460* | 44  | 25A         | 600V AC      | 12-280V AC        | 3-32V DC        | on request |
| SU963460* | 44  | 35A         | 1200V AC     | 24-600V AC        | 3.5-32V DC      | on request |
| SU965460* | 44  | 50A         | 1200V AC     | 24-600V AC        | 3.5-32V DC      | 2120       |
| SU967460* | 44  | 75A         | 1200V AC     | 24-600V AC        | 3.5-32V DC      | 2230       |

\*Non Stock items, allow 4-6 weeks delivery time.

### SU Range

- Designed for resistive load
- With pluggable connector on input
- IP20 protection with Removable
- For mounting on Heat sink or panel mount
- Over voltage protection on input
- Control Status LED
- Very low zero cross level
- Quick and easy connection
- UL/ cUL.

## Single Phase SSR's for Capacitor Control Applications SO8 Series 1-Phase With LED in okpac® Housing IP20 Protection



| Cat. No.  | MOQ | AC51 Rating | $I^2t(A^2S)$ | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹] |
|-----------|-----|-------------|--------------|--------------|-------------------|-----------------|---------|
| SO842074* | 10  | 25A         | 600          | 600V AC      | 12-275V AC        | 3-32V DC        | 3850    |
| SO863070* | 10  | 35A         | 1250         | 1200V AC     | 24-510V AC        | 3.5-32V DC      | 4250    |
| SO845070* | 10  | 50A         | 2500         | 600V AC      | 12-275V AC        | 3-32V DC        | 4550    |
| SO848070* | 10  | 95A         | 14400        | 600V AC      | 12-275V AC        | 3-32V DC        | 6850    |
| SO889060* | 10  | 125A        | 24000        | 1600V AC     | 24-600V AC        | 3.5-32V DC      | 18200   |

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

MOQ - Minimum Order Qty.

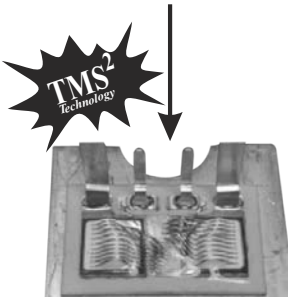


## Single Phase SSR's for Motor Control Applications SC7 Series 1-Phase Without LED (Random Switching)

| Cat. No.  | MOQ | AC51 Rating | AC53 Rating | I <sup>2</sup> t (A <sup>2</sup> S) | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹] |
|-----------|-----|-------------|-------------|-------------------------------------|--------------|-------------------|-----------------|---------|
| SC741110L | 10  | 12A         | 2.5A        | 72                                  | 600V AC      | 12-280 AC         | 4-30V DC        | 1160    |
| SC761110L | 10  | 12A         | 2.5A        | 72                                  | 1200V AC     | 24-520V AC        | 5-30V DC        | 1730    |
| SC742110L | 10  | 25A         | 5A          | 312                                 | 600V AC      | 12-280 AC         | 4-30V DC        | 1370    |
| SC762110L | 10  | 25A         | 5A          | 265                                 | 1200V AC     | 24-520V AC        | 5-30V DC        | 2450    |
| SC744110L | 10  | 40A         | 9A          | 612                                 | 600V AC      | 12-280 AC         | 4-30V DC        | 2650    |
| SC764110L | 10  | 50A         | 12A         | 1500                                | 1200V AC     | 24-520V AC        | 5-30V DC        | 5550    |
| SC767110L | 10  | 75A         | 16A         | 5000                                | 1200V AC     | 24-520V AC        | 5-30V DC        | 9500    |
| SC768110L | 5   | 95A         | 20A         | 11000                               | 1200V AC     | 24-520V AC        | 5-30V DC        | 9800    |
| SC769110L | 5   | 125A        | 30A         | 20000                               | 1200V AC     | 24-520V AC        | 5-30V DC        | 15800   |

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)

| Cat. No. | MOQ | AC51 Rating | AC53 Rating | I <sup>2</sup> t(A <sup>2</sup> S) | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹] |
|----------|-----|-------------|-------------|------------------------------------|--------------|-------------------|-----------------|---------|
| SO745090 | 10  | 50A         | 12A         | 2500                               | 600V AC      | 12-275V AC        | 3-32V DC        | 5350    |
| SO767090 | 10  | 75A         | 16A         | 7200                               | 1200V AC     | 24-510V AC        | 3.5-32V DC      | 7850    |
| SO768090 | 5   | 95A         | 20A         | 14400                              | 1200V AC     | 24-510V AC        | 3.5-32V DC      | 9200    |
| SO769090 | 5   | 125A        | 30A         | 24000                              | 1200V AC     | 24-510V AC        | 3.5-32V DC      | 13500   |

\*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 <sup>2</sup> t(A <sup>2</sup> S) | Peak Voltage | Operating  | Control Voltage | MRP [₹] |
|-------------------|-----|-------------|-------------|------------------------------------|--------------|------------|-----------------|---------|
| <b>DC CONTROL</b> |     |             |             |                                    |              |            |                 |         |
| SVT861394         | 5   | 12A         | 2.5A        | 72                                 | 1200V AC     | 24-520V AC | 8.5-30V DC      | 16800   |
| SVT864374         | 5   | 50A         | 12A         | 1500                               | 1200V AC     | 24-520V AC | 10-32V DC       | 20500   |
| SVT868394E        | 5   | 95A         | 24A         | 5000                               | 1200V AC     | 24-520V AC | 8.5-30V DC      | 21500   |
| SVT869394         | 5   | 125A        | 32A         | 20000                              | 1200V AC     | 24-520V AC | 8.5-30V DC      | 25500   |
| <b>AC CONTROL</b> |     |             |             |                                    |              |            |                 |         |
| SVT864994         | 5   | 50A         | 12A         | 1500                               | 1200V AC     | 24-520V AC | 90-240V AC      | 21500   |
| SVT967960         | 5   | 75A         | -           | 1500                               | 1200V AC     | 24-520V AC | 90-240V AC      | 24200   |
| SVT869994         | 5   | 125A        | 32A         | 20000                              | 1200V AC     | 24-520V AC | 90-240V AC      | 26500   |

MOQ - Minimum Order Qty.

## Proportional Controllers SG4 / SG5 Series 1-Phase Without LED



### 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).

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

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

MOQ - Minimum Order Qty.

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



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

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

\*Non Sock Items, please allow 4-6 weeks delivery time Pot<sup>§</sup> = Potentiometer

MOQ - Minimum Order Qty.

## Reverser Relay SG/SV/SW Series - 3-Phase Without LED

| Cat. No.  | MOQ | AC51 Rating | I <sup>2</sup> t(A <sup>2</sup> S) | Reversing Time | Peak Voltage | Operating Voltage | Control Voltage | MRP [₹]                                  |
|-----------|-----|-------------|------------------------------------|----------------|--------------|-------------------|-----------------|--|
| 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 Sock 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 [₹] |
|-----------|-----|-------------------|---------|
| SC1K4600  | 20  | IP20 Cover SC*    | 30      |
| SCHS6 DIN | 20  | Din Clip          | 130     |
| SCHS2200  | 5   | Heat Sink 2.2K/W  | 800     |
| SCHS1100  | 5   | Heat Sink 1.1 K/W | 2590    |
| SCHS0900  | 5   | Heat Sink 0.9 K/W | 3065    |
| SCHS0300  | 5   | Heat Sink 0.3K/W  | 4995    |

\*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 S07 / S08 / S09 / 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 (SCPDP) (having I<sup>2</sup>t rating lower than that of SSR I<sup>2</sup>t) must be used.

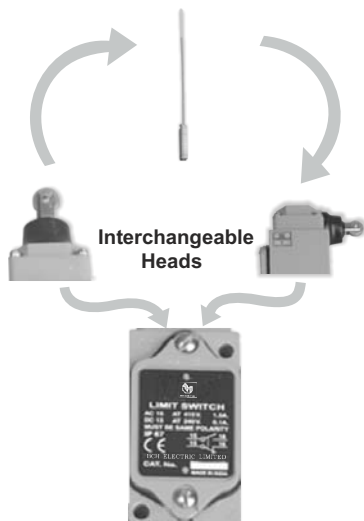
### Contact nearest Branch Office for Price & technical details for following Special duty Solid State Relays

- 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

## Heavy Duty Limit Switch - Snap Action Type NL IP 67

| Type         | Description   | Cat. No. Screw Terminal (1NO+1NC) | MRP [₹] | Cat.No. Precabled (1NO+1NC) | MRP [₹] | Cat. No. Screw Terminal (2NO+2NC) | MRP [₹] | Cat. No. Precabled (2NO+2NC)        | MRP [₹] |
|--------------|---|-----------------------------------|---------|-----------------------------|---------|-----------------------------------|---------|-------------------------------------|---------|
| Roller Lever | Standard-38MM<br>Standard-76.2mm<br>Adjustable                    | NLL1<br>NLL2<br>NLLA              | 1400    | NLL1C<br>NLL2C<br>NLLAC     | 1520    | NLL1-22<br>NLL2-22<br>NLLA-22     | 2135    | NLL1-22C<br>NLL2-22C<br>NLLA-22C    | 2225    |
|              | Maintained Type<br>Maintained Type<br>Maintained Type             | NLL1M<br>NLL2M<br>NLLAM           | 1570    | NLL1MC<br>NLL2MC<br>NLLAMC  | 1640    | NLL1M-22<br>NLL2M-22<br>NLLAM-22  | 2360    | NLL1M-22C<br>NLL2M-22C<br>NLLAM-22C | 2410    |
| Push Roller  | Top<br>Side   | NLTPR                             | 1400    | NLTPRC                      | 1520    | NLTPR-22                          | 2135    | NLTPR-22C                           | 2225    |
|              |   | NLSPR                             | 1530    | NLSPRC                      | 1640    | NLSPR-22                          | 2300    | NLSPR-22C                           | 2410    |
| Push Button  | Top Adjustable<br>Side Adjustable                                 | NLTPBA                            | 1400    | NLTPBAC                     | 1520    | NLTPBA-22                         | 2080    | NLTPBA-22C                          | 2225    |
|              |   | NLSPBA                            | 1530    | NLSPBAC                     | 1640    | NLSPBA-22                         | 2300    | NLSPBA-22C                          | 2410    |
| Cat Whisker  | Nylon Rod<br>Steel Rod  | NLCW                              | 1230    | NLCWC                       | 1315    | NLCW-22                           | 2030    | NLCW-22C                            | 2135    |
|              |   | NLJW                              | 1400    | NLJWC                       | 1495    | NLJW-22                           | 2135    | NLJW-22C                            | 2225    |
| Fork Type    | Roller in same line<br>Offset Rollers                             | NLLF<br>NLLFO                     | 1570    | NLLFC<br>NLLFOC             | 1640    | NLLF-22<br>NLLFO-22               | 2370    | NLLF-22C<br>NLLFO-22C               | 2410    |
|              | Roller in same line<br>Maintained<br>Offset Rollers<br>Maintained | NLLFM<br>NLLFOM                   | 1840    | NLLFMC<br>NLLFOMC           | 1910    | NLLFOM-22                         | 2565    | NLLFOM-22C                          | 2610    |

- 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 NEW

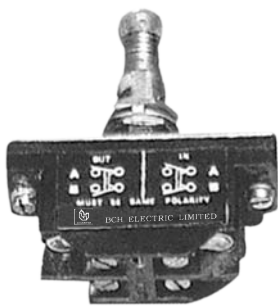
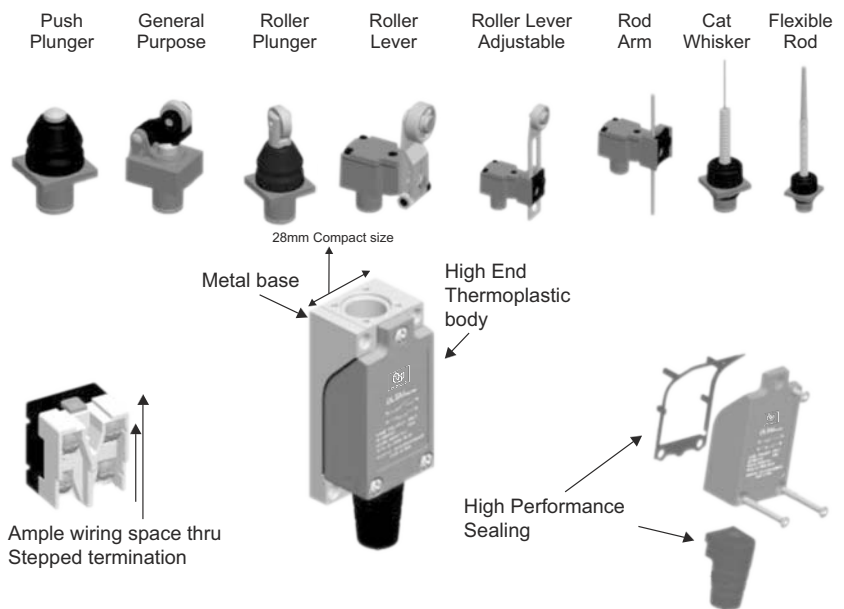


| Type                 |              | Cat. No. | MRP [₹] |
|----------------------|--------------|----------|---------|
| General Purpose Type |              | DLSMAR   | 915     |
| Top Plunger          | Standard     | DLSMPP   |         |
| Push Roller          | Standard     | DLSMRP   |         |
|                      | Cross        | DLSMRPX  |         |
| Roller Lever         | 39mm         | DLSMRL   | 950     |
|                      | Adjustable   | DLSMRLA  |         |
| Rod Arm              | Adjustable   | DLSMJWA  | 1005    |
| Cat's Whisker        | Steel Spring | DLSMSW   |         |
| Flexible Rod         | Nylon        | DLSMSR   |         |

### Applications

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

### Site Interchangeable Heads



## Precision Limit Switch

- 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 Oprns / hr

| 1NO+1NC             |              |         | 2NO+2NC          |         |          |
|---------------------|--------------|---------|------------------|---------|----------|
| Type of Operator    | Cat. No.     | MRP [₹] | Cat. No.         | MRP [₹] | Lot Size |
| Roller Lever        | PSRL-L or R  | 550     | PSRL-L-2 or R-2  | 645     | 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       | 515     | SP20S2           | 655     |          |

\* A or B



## Limit Switch for 125°C Application\*

| Type  | Cat. No.                  | MRP [₹]    |
|---|---------------------------|------------|
| with 1NO + 1NC<br>Roller Lever<br>Top Push Roller | LL1-150S-M<br>LTPR-150S-M | on request |

\*Refer to our nearest sales office for specification & details

## Heavy Duty General Purpose Limit Switch

|                       |                               |              |     |
|-----------------------|-------------------------------|--------------|-----|
| Snap Action<br>Type L | Angular Roller<br>Top Plunger | LLGS<br>LPGS | 920 |
|-----------------------|-------------------------------|--------------|-----|

## Oil Tight Limit Switch - Snap Action Type L IP 65

| Type         | Description         | Cat. No. | MRP [₹] |
|--------------|---------------------|----------|---------|
| Roller Lever | Standard-38MM       | LL1      | 1940    |
|              | Standard-76.2mm     | LL2      |         |
|              | Adjustable          | LLA      |         |
|              | Maintained Type LL1 | LL1M     | 2025    |
|              | Maintained Type LL2 | LL2M     |         |
|              | Maintained Type LLA | LLAM     |         |
| Push Roller  | Top                 | LTPR     | 1940    |
|              | Side                | LSPR     | 2185    |
| Push Button  | Top Adjustable      | LTPBA    | 2215    |
|              | Side Adjustable     | LSPBA    |         |
| Cat Whisker  | Nylon Rod           | LCW      | 1585    |
|              | Steel Rod           | LJW      | 1975    |
| Fork Type    | Roller in same line | LLF      | 1785    |
|              | Offset Rollers      | LLFO     | 1785    |
|              | Roller in same line | LLFM     | 2085    |
|              | Maintained          | LLFOM    | 2085    |
|              | Offset Rollers      |          |         |
| Maintained   |                     |          |         |

## Oil Tight Limit Switch - Spares

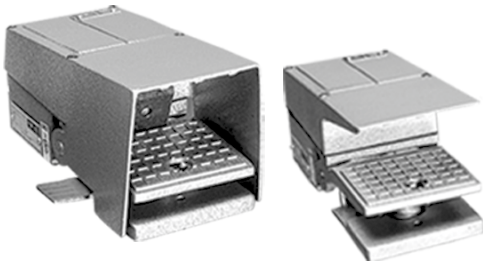
| Description                  | Suitable for | Cat. No.  | MRP [₹] |
|------------------------------|--------------|-----------|---------|
| 38 mm lever                  | NLL1, LL1    | SP40L1    | 290     |
| 76.2 mm lever                | NLL2, LL2    | SP40L2    | 385     |
| Adjustable lever             | NLLA, LLA    | SP40LA    | 385     |
| Operating Head               | LLGS, LPGS   | SP40HLG   | 580     |
| Operating Head               | Lever        | SP40HL    | 610     |
| Operating Head               | Top          | SP 40HTP* | 610     |
|                              | Plunger      | SP 40HSP* | 690     |
| Operating Head               | Cat Whisker  | SP40CW    | 420     |
|                              | Steel Rod    | SP40JW    | 580     |
| Limit Switch                 | 1NO+1NC      | SP40S1    | 885     |
| Assembly                     | 2NO+2NC      | SP40S2    | 1465    |
| Fork lever in Line           | LLF          | SP40LF    | 480     |
| Fork lever Offset            | LLFO         | SP40LFO   | 480     |
| Operating Head<br>Maintained | Lever        | SP40HLM   | 720     |
| Oil tight Conduit            |              | SP40CE    | 335     |

\* B = Button    R = Roller

# Foot Switch ..... BCH

| Number of Contact Blocks | Total contacts available | No. of position | Description         | Cat. No.         | MRP [₹]    | Lot Size |
|--------------------------|--------------------------|-----------------|---------------------|------------------|------------|----------|
| One                      | 1NO+1NC                  | 2               | With Guard          | FSGX1            | 3100       | 1        |
| One                      | 1NO+1NC                  | 2               | With Shield         | FSSX1            | 3105       |          |
| One                      | 1NO+1NC                  | 2               | With Latch          | FSGX1L           | 3270       |          |
| Two                      | 4NO+4NC                  | 2               | With Shield & Latch | FSSY2L           | 4385       |          |
| One                      | 2NO+2NC                  | 2               | With Guard          | FSGX2            | 3370       |          |
| One                      | 2NO+2NC                  | 2               | With Latch          | FSGX2L           | 3515       |          |
| Two                      | 2NO+2NC                  | 2               | With Guard          | FSGY1            | 3800       |          |
| Two                      | 2NO+2NC                  | 2               | With Latch          | FSGY1L           | 4050       |          |
| Two                      | 4NO+4NC                  | 2               | With Guard          | FSGY2            | 4440       |          |
| Two                      | 4NO+4NC                  | 2               | With Latch          | FSGY2L           | 4520       |          |
| Two                      | 1NO+1NC                  | 2               | With Guard          | FSGZ1M           | 3870       |          |
| Two                      | 4NO+4NC                  | 3               | With Latch          | FSGZ2M           | 4425       |          |
| Spare Contact Block      | 1NO+1NC<br>2NO+2NC       |                 |                     | SP20S1<br>SP20S2 | 515<br>655 |          |

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

## 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 [₹] | Lot Size |
|-----------------------------|---------------------------------------|----------|---------|----------|
| Actuator                    | <b>Standard flush Button</b>          |          |         |          |
|                             | Red                                   | TSFB-R   | 175     | 20       |
|                             | Green                                 | TSFB-G   |         |          |
|                             | Black                                 | TSFB-B   |         |          |
|                             | Yellow                                | TSFB-Y   |         |          |
|                             | Blue                                  | TSFB-BL  |         |          |
| Amber                       | TSFB-A                                |          |         |          |
| Actuator                    | <b>Long Button</b>                    |          |         |          |
|                             | Red                                   | TLB-R    | 175     | 10       |
|                             | Green                                 | TLB-G    |         |          |
|                             | Black                                 | TLB-B    |         |          |
|                             | Yellow                                | TLB-Y    |         |          |
|                             | Blue                                  | TLB-BL   |         |          |
| Amber (Orange)              | TLB-A                                 |          |         |          |
| Actuator                    | <b>Mushroom Head</b>                  |          |         |          |
|                             | -Spring return Red                    | TMH-R    | 220     | 10       |
|                             | -Spring return Green                  | TMH-G    | 220     |          |
|                             | -Turn to release Red                  | TMHL-R   | 250     |          |
| -Turn to release Green      | TMHL-G                                | 250      |         |          |
| Actuator                    | Selector Actuator<br>-2 or 3 position | TSSA *** | 455     | 10       |
|                             | Cylindrical Lock<br>-2 or 3 positions | TCL ***  | 670     | 10       |
| Station                     | Start/Stop Pushbutton                 | E20EA    | 785     | 1        |
| Contact Block               | 1NO +1NC                              | 050N1    | 215     | 20       |
|                             | 2NO                                   | 050N2    |         |          |
|                             | 2NC                                   | 050N3    |         |          |
| Aluminium Diecast Enclosure | One button                            | TEN-1    | 590     | 1        |
|                             | Two buttons                           | TEN-2    | 795     |          |
|                             | Three buttons                         | TEN-3    | 935     |          |
|                             | Four buttons                          | TEN-4    | 1090    |          |
| Accessories                 | Wrench for retaining ring             | TWN      | 215     | 1        |
|                             | Plug for hole                         | TPL      | 95      |          |
|                             | Legend plate                          | 0501#    | 35      |          |

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

## Oil Tight Indicating Light - E 30.5mm

| Description                      | Application | Cat. No. | MRP [₹] | Lot Size |
|----------------------------------|-------------|----------|---------|----------|
| (Without lens)<br>Direct type    | AC & DC     | TILD•10  | 320     | 1        |
| Transformer type                 | AC          | TILT•10  | 410     | 1        |
| Polycarbonate Lens<br>Spare Bulb | -           | LENS*    | 30      | 10       |
|                                  | AC & DC     | SP61L    | 35      | 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 [₹] | Lot Size |
|--------------------------------|----------|---------|----------|
| Actuator with bulb & terminals | TIPB ■   | 280     | 10       |
| Signal lamp transformer        | TR ■     | 230     | 10       |
| Bulb-6V or 24V                 | SP61L#   | 35      | 1        |
| Legend plate                   | 050L*    | 25      | 1        |
| Plastic lens                   | L2°      | 30      | 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

## 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



| Description                                 | Type   | Cat. No.   | MRP[₹]   | Lot Size |     |     |
|---|--|--|--|----------|-----|-----|
| Push Button Actuators with Mounting Adaptor | Opaque   | Flush  | HEA11*M  | 65       | 10  |     |
|   |  | Extended   | HEA12*M  | 70       |     |     |
|   | Illuminated  | Flush  | HEB11*M  | 100      |     |     |
|   |  | Extended   | HEB12*M  | 100      |     |     |
|   | Mushroom Head 28mm<br>Colour - Red/Black                                   | Momentary  | HEA21*M  | 90       | 10  |     |
|   |  | Twist to Release   | HEA23*M  | 135      |     |     |
|   |  | Stayput Key Release  | HEA25*M  | 275      |     |     |
|   |  | Mushroom Head 40mm<br>Colour - Red/Black                         | Momentary  | HEA22*M  |     | 110 |
|   |  | Twist to Release   | HEA24*M  | 155      |     |     |
| Light Source Units (LSU)                    | Basic Unit with Mounting Adaptor   | Lamp Holder & Lens   | HPL22*   | 60       | 10  |     |
|   | LSU with Bulb-Direct Type  | 6/12/24/48/60/110V ac/dc   | HLSUD#   | 65       |     |     |
|   | LSU with Bulb-Resistance Type ■  | 110V ac/dc & 240V ac   | HLSUR#   | 75       |     |     |
|   | LSU with Bulb-Transformer Type @   | Primary : 110V/240V/415V ac<br>Secondary : 6 & 12V ac            | HLSUT#   | 245      |     |     |
| LED Indicating Light                        | Standard<br>6/12/24/48/60/110/240/415V ac<br>6-60V ac/dc;<br>110 & 240V dc | Color - R/Y/G/A  | HFB2X*#  | 160      | 10  |     |
|   |  | Blue   | HFB2XL#  | 335      | 1   |     |
|   |  | Clear  | HFB2XC#  | 475      | 1   |     |
|   | Universal<br>24-240V ac/dc   | Color - R/Y/G/A  | HFB2X*UH4  | 210      |     |     |
|   |  | Blue   | HFB2XLUH4  | 420      |     |     |
|   |  | Surge Protected<br>12-60V ac/dc; 110/240/415V<br>ac; 110/240V dc | Color - R/Y/G/A  | HFB2S*#  | 205 | 10  |
|   | Blue   |  | HFB2SL#  | 365      | 1   |     |
|   | Clear  |  | HFB2SC#  | 510      | 1   |     |
|   | Low Voltage Glow Protected<br>220/240V ac                                  | Color - R/Y/G/A  | HFB2P*□  | 245      | 10  |     |
|   |  | Blue   | HFB2PLH  | 435      | 1   |     |
|   | Surge & Low Voltage Glow<br>Protected 220/240V ac                          | Color - R/Y/G/A  | HFB2SP*□   | 245      | 10  |     |
|   |  | Blue   | HFB2SPLH   | 435      | 1   |     |
| Selector Operators with Mounting Adaptor    | Selector Key Operator<br>(Color - Black)                                   | 2pos Maintained  | Pls refer<br>Ordering<br>Sequence &<br>Circuit<br>Combination<br>Table for<br>exact<br>Cat. Ref. | 255      | 1   |     |
|   |  | 2pos Spr Ret R>L   |  | 255      |     |     |
|   |  | 3pos Maintained  |  | 265      |     |     |
|   |  | 3pos Spr Ret L>C   |  | 265      |     |     |
|   |  | 3pos Spr Ret R>C   |  | 265      |     |     |
|   |  | 3pos Spr Ret L>C<R   |  | 265      |     |     |
|   | Selector Knob or Lever<br>Opaque   | 2pos Maintained  |  | 185      |     |     |
|   |  | 2pos Spr Ret R>L   |  | 185      |     |     |
|   |  | 3pos Maintained  |  | 185      |     |     |
|   |  | 3pos Spr Ret L>C   |  | 200      |     |     |
|   |  | 3pos Spr Ret R>C   |  | 200      |     |     |
|   |  | 3pos Spr Ret L>C<R   |  | 215      |     |     |
|   | Selector Knob or Lever<br>Illuminated •                                    | 2pos Maintained  |  | 215      |     |     |
|   |  | 2pos Spr Ret R>L   |  | 215      |     |     |
|   |  | 3pos Maintained  |  | 215      |     |     |
|   |  | 3pos Spr Ret L>C   |  | 245      |     |     |
|   |  | 3pos Spr Ret R>C   |  | 245      |     |     |
|   |  | 3pos Spr Ret L>C<R   |  | 245      |     |     |

\* 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



| Description   | Type       | Cat. No. | MRP [₹] | Lot Size |
|---------------|------------|----------|---------|----------|
| Contact Block |            | 1NO      | HCB10   | 55       |
|               |            | 1NC      | HCB01   |          |
|               | Early Make | 1NO      | HCB10EM | 60       |
|               | Late Break | 1NC      | HCB01LB |          |
|               |            | 1NO+1NC  | HCB11   | 90       |
|               |            | 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

| 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    |

| 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   |

| 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

| 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.

|                      | Description                        | Type              | Cat. No. | MRP [₹] | Lot Size |
|----------------------|------------------------------------|-------------------|----------|---------|----------|
| Spares & Accessories | Filament Bulb                      | Normal Bulb       | 9ED2#    | 20      | 10       |
|                      | Filament Bulb                      | Extended Bulb     | 9ED3#    | 20      |          |
|                      | Mounting Adaptor                   |                   | HMR      | 20      |          |
|                      | 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  | Flush/Extended PB | 8EA9 +   | 20      |          |
|                      | Rubber Boot for IP66 Protection    |                   | HRB*     | 30      |          |
|                      | Padlock to Prevent Operation       |                   | 8EA1     | 55      |          |

\* 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

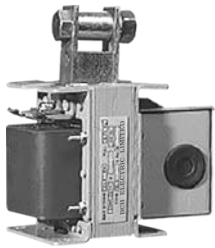


### Range

- 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

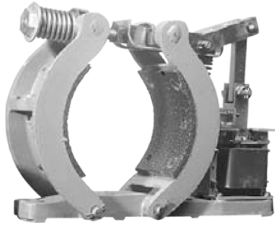
- Chrome plated metal bezel
- Modular Snapfit construction
- Oil Tight, Water tight and corrosion-resistant.
- IP65 Degree of Protection
- Anti Rotation Mounting
- Possibility to add 10 Contacts (Coming Soon)
- Operating temperature -20° C to 60° C



## AC Solenoid - Pull Type

| Type | Stroke Length mm | Max. Pull (Continuous Duty) Kg. | Cat. No. | List Price [₹] |
|------|------------------|---------------------------------|----------|----------------|
| B    | 25.0             | 1.25                            | SLB-     | 3070           |
| D    | 31.4             | 6.75                            | SLD-     | 4535           |

\* 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 [₹] | Cat. No. | List Price [₹] |
| S-4           | 4          | 101.6 | 10          | 13.6  | Continuous   | S-42 ■   | 8100           | AC50D4   | 1375           |
| S-5           | 5.5        | 139.7 | 25          | 34.0  | Continuous   | S-51 ■   | 11430          | AC50D5   | 1900           |
|               |            |       | 35          | 48.0  | Intermittent | S-52 ■   |                |          |                |
| S-7           | 7          | 177.8 | 50          | 68.0  | Continuous   | S-71 ■   | 13260          | AC50D7   | 2135           |
|               |            |       | 75          | 102.0 | Intermittent | S-72 ■   |                |          |                |

### 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 NEW

|       |      |     |     |       |            |         |       |   |      |
|-------|------|-----|-----|-------|------------|---------|-------|---|------|
| S-250 | 9.84 | 250 | 109 | 147.0 | Continuous | S-2501* | 28065 | - | 4050 |
|-------|------|-----|-----|-------|------------|---------|-------|---|------|

- 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

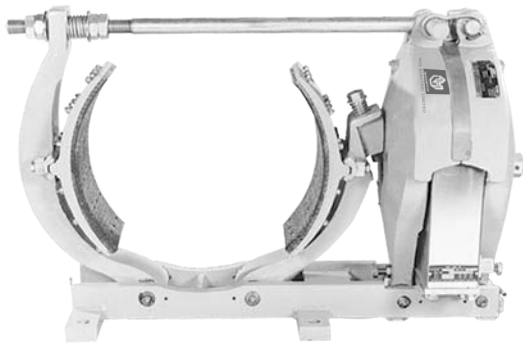
| Coil Voltage | 110 | 220 | 415 |
|--------------|-----|-----|-----|
| AC           | A   | B   | M   |

## Spares For AC Solenoid Brake

| Description                                | Brake Size : 4" |                | Brake Size : 5.5"        |                | Brake Size : 7"          |                | Brake Size : 10" |                |
|--|-----------------|----------------|--------------------------|----------------|--------------------------|----------------|------------------|----------------|
|  | Cat. No.        | List Price [₹] | Cat. No.                 | List Price [₹] | Cat. No.                 | List Price [₹] | Cat. No.         | List Price [₹] |
| Brake lining                               | SP50L1          | 1025           | SP50L2                   | 1525           | SP50L3                   | 2050           | SP50L4           | on request     |
| Brake shoe Assembly*                       | SP50SA1         | 2630           | SP50SA2                  | 3720           | SP50SA3                  | 6135           | SP50SA4          | 12375          |
| Brake Coil<br>-Continuous<br>-Intermittent | SP50MC01        | 1485           | SP50MC21 ■<br>SP50MC22 ■ | 2965           | SP50MC21 ■<br>SP50MC22 ■ | 2965           | SP50MCE31 ■      | 7845           |
| Brake Drum                                 | AC50D4          | 1375           | AC50D5                   | 1880           | AC50D7                   | 2115           | AC50D25          | 4010           |

- 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.



- 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 π' 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 [₹] | Single Brake                 |                | 2 Brakes Simult. Operation |                |
|                |                  | KG-M   |                | Cat.No.                      | List Price [₹] | Cat.No.                    | List Price [₹] |
| 150mm<br>160mm | SMH150<br>SMH160 | 8      | 34130          | CACS1*MAE                    | 35840          | CACS2*MAE                  | 49805          |
| 8"/200mm       | SMH8             | 13.8   | 40180          | CACA1*MAE                    | 39955          | CACJ2*MAE                  | 51785          |
|                | SMH200           | 13.8   |                |                              |                |                            |                |
| 10"/250mm      | SMH10            | 27.7   | 49335          | CACB1*MAE                    | 42405          | CACK2*MAE                  | 58565          |
|                | SMH250           | 27.7   |                |                              |                |                            |                |
| 13"/300mm      | SMH13            | 76.0   | 80770          | CACC1*MAE                    | 45930          | CACL2*MAE                  | 67455          |
|                | SMH300           | 76.0   |                |                              |                |                            |                |
| 16"/400mm      | SMH16            | 138.8  | 130025         | CACD1*MAE                    | 52895          | CACM2*MAE                  | 74120          |
|                | SMH400           | 138.8  |                |                              |                |                            |                |
| 19"/500mm      | SMH19            | 277.0  | 207815         | CACE1*MAE                    | 63960          | CACN2*MAE                  | 93645          |
|                | SMH500           | 277.0  |                |                              |                |                            |                |
| 23"/600mm      | SMH23            | 555.0  | 331770         | CACF1*MAE                    | 82475          | CACP2*MAE                  | 115025         |
|                | SMH600           | 555.0  |                |                              |                |                            |                |
| 30"/700mm      | SMH30            | 1242.0 | 738840         | CACG1*MAE                    | 325635         | -                          | -              |
|                | SMH700           | 1242.0 |                |                              |                |                            |                |
| 800mm          | SMH800           | 1242.0 | 800495         | CACG1*MAE                    | 325635         | -                          | -              |

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

- 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. 4450 /- 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 [₹] | Cat. No.  | List Price [₹] | Cat. No.   | List Price [₹] |
| 150mm      | SMH150   | 8          | CDCS101D  | 4925           | CARS10KE  | 4505           | CARS10ME   | 9105           |
| 160mm      | SMH160   |            |   |                |   |                |  |                |
| 8"/200mm   | SMH8     | 13.8       | CDCA101D  | 5110           | CARA10KE  | 4660           | CARA10ME   | 9105           |
|            | SMH200   | 13.8       | CD1A101D*   |                |   |                |  |                |
| 10"/250mm  | SMH10    | 27.7       | CDCB101D  | 6075           | CARB10KE  | 5530           | CARB10ME   | 9105           |
|            | SMH250   | 27.7       | CD1B101D*   |                |   |                |  |                |
| 13"/300mm  | SMH13    | 76.0       | CDCC101D  | 7005           | CARC10KE  | 6365           | CARC10ME   | 10420          |
|            | SMH300   | 76.0       | CD1C101D*   |                |   |                |  |                |
| 16"/400mm  | SMH16    | 138.8      | CDCD101D  | 7505           | CARD10KE  | 6835           | CARD10ME   | 12120          |
|            | SMH400   | 138.8      | CD1D101D*   |                |   |                |  |                |
| 19"/500mm  | SMH19    | 277.0      | CDCE101D  | 8035           | CARE10KE  | 7330           | CARE10ME   | 13455          |
|            | SMH500   | 277.0      | CD1E101D*   |                |   |                |  |                |
| 23"/600mm  | SMH23    | 555.0      | CDCF101D  | 9145           | CARF10KE  | 8240           | CARF10ME   | 14465          |
|            | SMH600   | 555.0      | CD1F101D*   |                |   |                |  |                |
| 30"/700mm  | SMH30    | 1242.0     | CDCG101D  | 22195          | -   | -              | CARG10ME   | 24965          |
|            | SMH700   | 1242.0     | CD1G101D*   |                |   |                |  |                |
| 800mm      | SMH800   | 1242.0     | CD1G101D*   | 22195          | -   | -              | CARG10ME   | 24965          |

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 [₹] |
|------------|---------------------------|------------------|--------------|---------------------|-----------------|--------------|----------------------|----------------|
|            |                           | 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<br>SME200H1  | 8.97            | 21           | SME801<br>SME20001   | 82795          |
|            |                           |                  | 44           | SME8H2<br>SME200H2  |                 | 31           | SME802<br>SME20002   |                |
| 10"/250mm  | 404,603,802C, 406,604,803 | 27.7             | 57           | SME10H1<br>SME250H1 | 18.0            | 40           | SME1001<br>SME25001  | 118135         |
|            |                           |                  | 77           | SME10H2<br>SME250H2 |                 | 57           | SME1002<br>SME25002  |                |
| 13"/300mm  | 408,606,804, 410,608,806  | 76.0             | 126          | SME13H1<br>SME300H1 | 49.4            | 95           | SME1301<br>SME30001  | 160070         |
|            |                           |                  | 176          | SME13H2<br>SME300H2 |                 | 132          | SME1302<br>SME30002  |                |
| 16"/400mm  | 412,610,808               | 138.8            | 245          | SME16H1<br>SME400H1 | 90.2            | 185          | SME1601<br>SME40001  | 250520         |
| 19"/500mm  | 414,612,810, 416,614,812  | 277.0            | 368          | SME19H1<br>SME500H1 | 180.0           | 272          | SME1901<br>SME50001  | 384860         |
|            |                           |                  | 500          | SME19H2<br>SME500H2 |                 | 360          | SME1902<br>SME 50002 |                |
| 23"/600mm  | 418,616,814 618,816       | 555.0            | 740          | SME23H1<br>SME600H1 | 361.0           | 540          | SME2301<br>SME60001  | 622670         |
|            |                           |                  | 960          | SME23H2<br>SME600H2 |                 | 730          | SME2302<br>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 [₹]    | Cat No.           | List Price [₹]    | Cat No.           | List Price [₹]    | Cat No.             | List Price [₹]    |      |
|  Coil Shunt   | 9GDS01                                       | 23140             | 9GDA01            | 25220             | 9GDB01            | 29995             | 9GDC01              | 48400             |      |
|  Coil Series  | for inch<br>9GDS02/<br>for mm<br>9GDS03      | -                 | 9GDA02/<br>9GDA03 | 60990             | 9GDB02/<br>9GDB03 | 95610             | 9GDC02/<br>9GDC03   | 123665            |      |
|  Torque Adj. Screw Assembly   | 9GDS04                                       | 2190              | 9GDA04            | 2290              | 9GDB04            | 2285              | 9GDC04              | 3990              |      |
|  Torque Spring  | 9GDS05                                       | 5985              | 9GDA05            | 6250              | 9GDB05            | 7340              | 9GDC05              | 12145             |      |
|  Wedge Assembly with Bolt, Spring and Washers   | for inch/mm<br>9GDS20/<br>9GDS22             | 840               | 9GDA20/<br>9GDA22 | 970               | 9GDB20/<br>9GDB22 | 1125              | 9GDC20/<br>9GDC22   | 1730              |      |
|  Pin set for Lever & Armature<br>Consisting of<br>a) Pin Lever 2 Nos.<br>b) Pin armature 2 Nos.          | 9GDS06                                       | 3010              | 9GDA06            | 3160              | 9GDB06            | 3160              | 9GDC06<br>9GDC06-2# | 3990              |      |
|  Collar Set of Lever & Armature<br>Consisting of<br>a) Collar Lever 4 Nos.<br>b) Collar Armature 4 Nos. | 9GDS07                                       | 3010              | 9GDA07            | 3160              | 9GDB07            | 3160              | 9GDC07              | 3990              |      |
|  Bush Set for Lever & Armature<br>Consisting of<br>a) Bush Lever 4 Nos.<br>b) Bush Armature 4 Nos.      | 9GDS08                                       | 5985              | 9GDA08            | 6285              | 9GDB08            | 6285              | 9GDC08              | 6845              |      |
|  Pull Rod Assembly with nuts, spring & washer   | 9GDS29                                       | 2435              | 9GDA29            | 2550              | 9GDB29            | 3160              | 9GDC29              | 4865              |      |
|  Grease Nipple (1 set consist 8 Nos.)   | 9GDS09                                       | 835               | 9GDA09            | 835               | 9GDB09            | 835               | 9GDC09              | 835               |      |
|  Shoe Assembly with Clamp & Bolts<br>(1 set consist 2 Nos.)   | for inch/mm<br>9GDS10/<br>9GDS11             | 6230              | 9GDA10/<br>9GDA11 | 6215              | 9GDB10/<br>9GDB11 | 7705              | 9GDC10/<br>9GDC11   | 11970             |      |
|  Shoe Lining without Bolts  | for inch<br>(1 set consist 2 Nos.)<br>for mm | 9GDS12/<br>9GDS13 | 2095              | 9GDA12/<br>9GDA13 | 2190              | 9GDB12/<br>9GDB13 | 2755                | 9GDC12/<br>9GDC13 | 3990 |
|  Shoe Lining with Bolts   | for inch<br>(1 set consist 2 Nos.)<br>for mm | 9GDS23/<br>9GDS26 | 2850              | 9GDA23/<br>9GDA26 | 3160              | 9GDB23/<br>9GDB26 | 3990                | 9GDC23/<br>9GDC26 | 5715 |
|  Dust Cover (made of jeans cloth & painted with fire reterdent al. paint).                              | -  | -                 | 9GDA30            | 3515              | 9GDB30            | 3515              | 9GDC30              | 4185              |      |
|  mm Size Cast Steel Drum without Hard Chrome Plating  | 9GDS14                                       | 6910              | 9GDA14            | 7605              | 9GDB14            | 11715             | 9GDC14              | 19750             |      |
|  mm Size Cast Steel Drum with Hard Chrome Plating   | 9GDS14P                                      | 9340              | 9GDA14P           | 10885             | 9GDB14P           | 16790             | 9GDC14P             | 28620             |      |
|  Cast Steel Drum without Hard Chrome Plating*   | for inch                                     | -                 | 9GDA15            | 7780              | 9GDB15            | 11980             | 9GDC15              | 20270             |      |
|  Cast Steel Drum with Hard Chrome Plating*  | for inch                                     | -                 | 9GDA15P           | 11170             | 9GDB15P           | 16970             | 9GDC15P             | 29410             |      |

\* 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 [₹] | Cat No.              | List Price [₹] | Cat No.              | List Price [₹] | Cat No.           | List Price [₹] |
|  Coil Shunt  | 9GDD01                                 | 73285          | 9GDE01               | 101605         | 9GDF01               | 162380         | 9GDG01            | 362105         |
|  Coil Series   | for inch<br>9GDD02<br>for mm<br>9GDD03 | 181945         | 9GDE02<br>9GDE03     | 237345         | 9GDF02<br>9GDF03     | 366900         | -                 | -              |
|  Torque Adj. Screw Assembly  | 9GDD04                                 | 5970           | 9GDE04               | 8520           | 9GDF04               | 13625          | 9GDG04            | 28565          |
|  Torque Spring   | 9GDD05                                 | 18415          | 9GDE05               | 25485          | 9GDF05               | 42205          | 9GDG05            | 90600          |
|  Wedge Assembly with Bolt, for inch Spring and Washers for mm  | 9GDD20/<br>9GDD22                      | 2285           | 9GDE20/<br>9GDE22    | 3435           | 9GDF20/<br>9GDF22    | 5410           | 9GDG20/<br>9GDG22 | 11995          |
|  Pin set for Lever & Armature Consisting of a) Pin Lever 2 Nos. for inch for mm b) Pin Armature 2 Nos. | 9GDD06*<br>9GDD06-2#                   | 4865           | 9GDE06*<br>9GDE06-2# | 4865           | 9GDF06*<br>9GDF06-2# | 6845           | On request        | On request     |
|  Collar Set of Lever & Armature Consisting of a) Collar Lever 4 Nos. b) Collar Armature 4 Nos.        | 9GDD07                                 | 3435           | 9GDE07               | 3720           | 9GDF07               | 4650           | On request        | On request     |
|  Bush Set for Lever & Armature Consisting of a) Bush Lever 4 Nos. b) Bush Armature 4 Nos.            | 9GDD08                                 | 6845           | 9GDE08               | 7390           | 9GDF08               | 9400           | On request        | On request     |
|  Pull Rod Assembly with nuts, spring & washer  | 9GDD29                                 | 7390           | 9GDE29               | 10225          | 9GDF29               | 13750          | 9GDG29            | 36005          |
|  Grease Nipple (1 set consist 8 Nos.)  | 9GDD09                                 | 835            | 9GDE09               | 1035           | 9GDF09               | 1035           | On request        | On request     |
|  Shoe Assembly with Clamp & Bolts (1 set consist 2 Nos.) for inch for mm                             | 9GDD10/<br>9GDD11                      | 18440          | 9GDE10/<br>9GDE11    | 25510          | 9GDF10/<br>9GDF11    | 40795          | 9GDG10/<br>9GDG11 | 90600          |
|  Shoe Lining without Bolts (1 set consist 2 Nos.) for inch for mm                                    | 9GDD12/<br>9GDD13                      | 6260           | 9GDE12/<br>9GDE13    | 10225          | 9GDF12/<br>9GDF13    | 15140          | 9GDG12/<br>9GDG13 | 28625          |
|  Shoe Lining with Bolts (1 set consist 2 Nos.) for inch for mm                                       | 9GDD23/<br>9GDD26                      | 7705           | 9GDE23/<br>9GDE26    | 12760          | 9GDF23/<br>9GDF26    | 19835          | 9GDG23/<br>9GDG26 | 35410          |
|  Dust Cover (made of jeans cloth & painted with fire retardant al. paint).                           | 9GDD30                                 | 4540           | 9GDE30               | 5610           | 9GDF30               | 5885           | -                 | -              |
|  mm Size Cast Steel Drum without Hard Chrome Plating   | 9GDD14                                 | 24690          | 9GDE14               | 39665          | 9GDF14               | 55930          | -                 | -              |
|  mm Size Cast Steel Drum with Hard Chrome Plating  | 9GDD14P                                | 36770          | 9GDE14P              | 57930          | 9GDF14P              | 85575          | -                 | -              |
|  Cast Steel Drum without Hard Chrome Plating* for inch   | 9GDD15                                 | 25425          | 9GDE15               | 40800          | 9GDF15               | 56730          | -                 | -              |
|  Cast Steel Drum with Hard Chrome Plating* for inch  | 9GDD15P                                | 37935          | 9GDE15P              | 59970          | 9GDF15P              | 88525          | 9GDG15P           | 149990         |

\* For brakes manufactured upto September 07.

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

## Spare Selenium Type Bridge Rectifiers

| Rectifier Code / Part No. | Recommended to operate brake at 415V AC |                            | Qty. per set | List Price [₹] |
|---------------------------|---|----------------------------|--------------|----------------|
|                           | Individual                              | Simultaneous               |              |                |
| 9GDX01                    | 1x8"/200mm                              | -                          | 2            | 7100           |
| 9GDX02                    | 1x10"/250mm                             | 2x8"/200mm                 | 2            | 11085          |
| 9GDX03                    | 1x13"/300mm<br>1x16"/400mm              | 2x10"/250mm                | 2            | 15025          |
| 9GDX04                    | 1x19"/500mm                             | 2x13"/300mm<br>2x16"/400mm | 2            | 19835          |
| 9GDX05                    | 1x23"/600mm                             | 2x19"/500mm                | 2            | 28305          |
| 9GDX06                    | -                                       | 2x23"/600mm                | 2            | 56640          |
| 9GDX07                    | 1x30"/700 & 800mm                       | -                          | 2            | 78545          |

## Spare Resistances

| Cat. No. | Ohms | Watts | List Price [₹] |
|----------|------|-------|----------------|
| 9GDX32   | 32   | 200   | 1305           |
| 9GDX42   | 42   | 200   |                |
| 9GDX52   | 52   | 200   |                |
| 9GDX80   | 80   | 200   |                |
| 9GDX112  | 112  | 200   |                |

## Optional Features - DC Brakes

| Brakes Size |     | Manual Release<br>List Price [₹] | Residual Magnetism Adjustment<br>List Price [₹] | Limit Switch Attachment<br>List Price [₹] |
|-------------|-----|----------------------------------|---|---|
| Inch        | mm  |                                  |   |   |
| 8           | 200 | 3040                             | 2875  | 5560                                      |
| 10          | 250 | 3040                             | 3390  |   |
| 13          | 300 | 4160                             | 5040  |   |
| 16          | 400 | 4460                             | 7520  |   |
| 19          | 500 | 6885                             | 10325   | 5665                                      |
| 23          | 600 | 9730                             | 11790   |   |

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 (1NO + 1NC)
- LSA-2 = Limit Switch (2NO + 2NC) with fitting Arrangement



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

| Rating    | Pins   | Type   | Cat No. | MRP [₹] |
|-----------|--------|--------|---------|---------|
| 20A, 250V | 2P + E | Plug   | MP20    | 150     |
|           |        | Socket | MS20    | 165     |
| 30A, 440V | 3P + E | Plug   | MP30    | 335     |
|           |        | Socket | MS30    | 335     |



## Plastic Plugs & Socket Type 'PS'

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

| Rating    | Pins    | Type                          | Cat No. | MRP [₹] |
|-----------|---------|-------------------------------|---------|---------|
| 20A, 250V | 3       | Plug                          | PS16AA7 | 170     |
|           |         | Flush Mounting Socket         | PS16BA7 | 190     |
|           |         | Socket with Wall Mounting Box | PS16DA7 | 250     |
| 20A, 415V | 4       | Plug                          | PS16AA1 | 215     |
|           |         | Flush Mounting Socket         | PS16BA1 | 260     |
|           |         | Socket with Wall Mounting Box | PS16DA1 | 310     |
| 32A, 415V | 3       | Plug                          | PS32AA7 | 405     |
|           | Socket  | PS32BA7                       | 405     |         |
|           | 4       | Plug                          | PS32AA1 | 420     |
| Socket    | PS32BA1 | 445                           |         |         |
| 5         | Plug    | PS32AA5                       | 460     |         |
|           | Socket  | PS32BA5                       | 470     |         |

## Heavy duty Metal-Control 'SS'



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

| Rating              | Pins | Type                      | Cat No. | MRP [₹] |
|---------------------|------|---------------------------|---------|---------|
| 12A, 415V (Control) | 12   | Panel Mounting Socket     | 2499/12 | 935     |
|                     |      | Plug with inclined Handle | 299/12B | 935     |

## Heavy duty Metal-Power 'SS'



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

| Rating    | Pins | Type                      | Cat No. | MRP [₹] |
|-----------|------|---------------------------|---------|---------|
| 30A, 415V | 3    | Panel Mounting Socket     | 2415B   | 595     |
|           |      | Plug with inclined Handle | 215B    | 595     |
| 30A, 415V | 4    | Panel Mounting Socket     | 2413B   | 620     |
|           |      | Plug with inclined Handle | 213B    | 620     |
| 30A, 415V | 5    | Panel Mounting Socket     | 2417B   | 660     |
|           |      | Plug with inclined Handle | 217B    | 660     |

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

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

| Rating     | Pins | Type            | Cat No. | MRP [₹] |
|------------|------|-----------------|---------|---------|
| 16A, 415V  | 5    | Plug            | DS1A7A1 | 920     |
|            |      | Socket          | DS1B7A1 | 1140    |
|            |      | Conduit Box     | SP91WB  | 580     |
|            |      | Handle Assembly | SP91PH  | 130     |
| 32A, 415V  | 5    | Plug            | DS3A7A1 | 1615    |
|            |      | Socket          | DS3B7A1 | 2025    |
|            |      | Conduit Box     | SP93WB  | 665     |
|            |      | Handle Assembly | SP93PH  | 140     |
| 63A, 415V  | 5    | Plug            | DS6A7A1 | 2590    |
|            |      | Socket          | DS6B7A1 | 3340    |
|            |      | Conduit Box     | SP96WB  | 1095    |
|            |      | Handle Assembly | SP96PH  | 205     |
| 125A, 415V | 5    | Plug            | DS9A7A1 | 7575    |
|            |      | Socket          | DS9B7A1 | 10615   |
|            |      | Conduit Box     | SP99WB  | 5315    |
|            |      | Handle Assembly | SP99PH  | 665     |

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

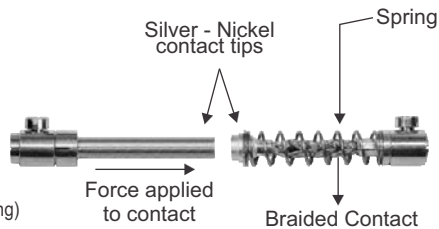


- Spring loaded Butt type contacts  
- Self aligning and self wiping

Quick Disconnect



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



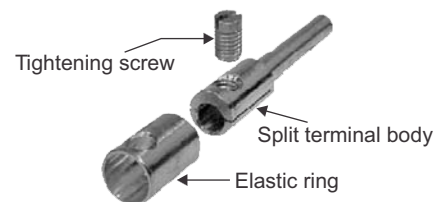
**Sparkless Butt type contact**

- Self aligning self wiping
- Spring loaded for consistent pressure
- Silver nickle material for extremely low temperature rise

Safety Disk



Vibration proof termination





## Metal Clad - Plug & Socket Box Type 'MPSEU'



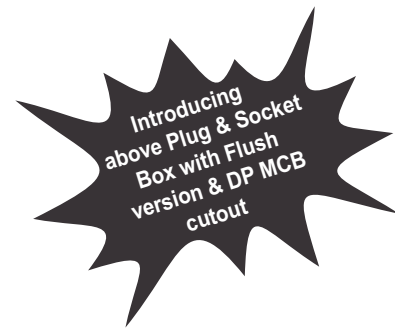
| Rating    | Pins   | Mounting  | Type                                | Cat No.  | MRP [₹] |
|-----------|--------|-----------|-------------------------------------|----------|---------|
| 20A, 250V | 2P + E | Universal | Plug & Socket Box - SP- MCB Cutout  | MPSEU201 | 805     |
| 20A, 250V | 2P + E | Universal | Plug & Socket Box - DP- MCB Cutout  | MPSEU202 | 805     |
| 30A, 440V | 3P + E | Universal | Plug & Socket Box - TPN- MCB Cutout | MPSEU301 | 2050    |



20A



30A



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



| Rating    | Pins  | Mounting  | Type                                  | Cat No. | MRP [₹] |
|-----------|-------|-----------|---------------------------------------|---------|---------|
| 20A, 250V | 3     | Universal | Plug & Socket Box with SP MCB Cutout  | PSEU201 | 940     |
|           |       | Universal | Plug & Socket Box with DP- MCB Cutout | PSEU202 | 940     |
|           | Flush | Universal | Plug & Socket Box with SP MCB Cutout  | PSEF201 | 940     |
|           |       | Universal | Plug & Socket Box with DP- MCB Cutout | PSEF202 | 940     |
| 32A, 415V | 4     | Universal | Plug & Socket Box with 4P MCB Cutout  | PSEU324 | 2155    |
|           |       |           | Plug & Socket Box with 4P MCB Cutout  | PSEU325 | 2210    |
|           | 5     | Flush     | Plug & Socket Box with 4P MCB Cutout  | PSEF324 | 2155    |
|           |       |           | Plug & Socket Box with 4P MCB Cutout  | PSEF325 | 2210    |

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

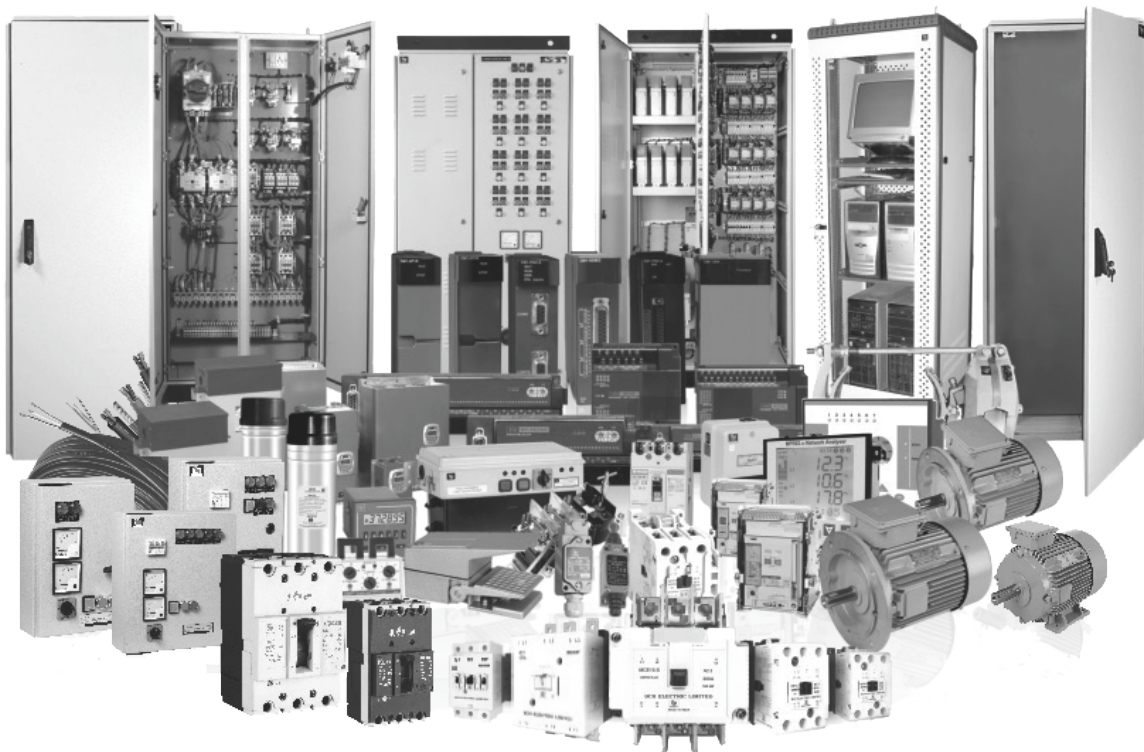
| Rating    | Pins | Mounting  | Type                                 | Cat No. | MRP [₹] |
|-----------|------|-----------|--------------------------------------|---------|---------|
| 30A, 415V | 3    | Universal | Plug & Socket Box with DP MCB Cutout | SSEU303 | 2440    |
|           | 4    | Universal | Plug & Socket Box with 4P MCB Cutout | SSEU304 | 2500    |
|           |      |           | Plug & Socket Box with 4P MCB Cutout | SSEU305 | 2560    |



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

| Rating                 | Pins | Mounting  | Type                                    | Cat No.     | MRP [₹] |
|------------------------|------|-----------|---|-------------|---------|
| 20A, 250V<br>32A, 415V | 3    | Universal | P&S Box with 'PS' P&S and SP MCB Cutout | PSEU201-SSC | 1205    |
|                        | 5    |           | P&S Box with 'PS' P&S and 4P MCB Cutout | PSEU325-SSC | 2525    |
| 30A, 415V              | 3    | Universal | Plug & Socket Box with DP MCB Cutout    | SSEU303-SSC | 2815    |
|                        | 4    | Universal | Plug & Socket Box with 4P MCB Cutout    | SSEU304-SSC | 2875    |
|                        |      |           | Plug & Socket Box with 4P MCB Cutout    | SSEU305-SSC | 2930    |

# ENDURING SOLUTIONS FOR DEMANDING APPLICATIONS

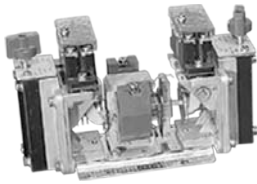


Switchgear | Controlgear | Enclosures | Motor Starters & Submersible Pump Panels |  
Brakes and Crane Controls | MCC | PCC | Customised Solutions | Automation |  
Wires & Cables | Motors | Reactive Power Management

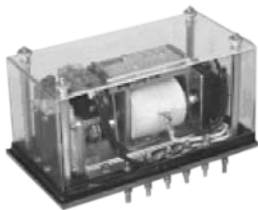


BCH ELECTRIC LIMITED

## 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



## Pneumatic Timers Time Delay Relay-Electro Pneumatic

| Type | Time (Secs.) | Contact Configuration |                     | Cat No.    | MRP [₹] |      |
|------|--------------|-----------------------|---------------------|------------|---------|------|
|      |              | Timed Block           | Instantaneous Block |            | AC      | DC   |
| PN   | 30           | 1NO + 1NC             | -                   | KRTPN10-0  | 3045    | 4565 |
|      | 60           | 1NO + 1NC             | -                   | KRTPN10-1  | 3155    | 4830 |
|      | 180          | 1NO + 1NC             | -                   | KRTPN10-3  | 3565    | 5265 |
|      | 30           | 2NO + 2NC             | -                   | KRTPN20-0  | 3420    | 4895 |
|      | 60           | 2NO + 2NC             | -                   | KRTPN20-1  | 3505    | 4955 |
|      | 180          | 2NO + 2NC             | -                   | KRTPN20-3  | 3760    | 5320 |
| PNI  | 30           | 1NO + 1NC             | 1NO + 1NC           | KRTPN11-0  | 3715    | 5485 |
|      | 60           | 1NO + 1NC             | 1NO + 1NC           | KRTPN11-1  | 4225    | 5815 |
|      | 180          | 1NO + 1NC             | 1NO + 1NC           | KRTPN11-3  | 4615    | 5890 |
|      | 30           | 2NO + 2NC             | 2NO + 2NC           | KRTPN22-0  | 4660    | 6080 |
|      | 60           | 2NO + 2NC             | 2NO + 2NC           | KRTPN22-1  | 4715    | 6400 |
|      | 180          | 2NO + 2NC             | 2NO + 2NC           | KRTPN22-3  | 5060    | 6760 |
|      |              | On-Delay Block        | Off-Delay Block     |            |         |      |
| PCN  | 30           | 1NO + 1NC             | 1NO + 1NC           | KRTPCN11-0 | 5040    | 6750 |
|      | 60           | 1NO + 1NC             | 1NO + 1NC           | KRTPCN11-1 | 5295    | 6805 |
|      | 180          | 1NO + 1NC             | 1NO + 1NC           | KRTPCN11-3 | 6015    | 7525 |
|      | 30           | 2NO + 2NC             | 2NO + 2NC           | KRTPCN22-0 | 5670    | 7410 |
|      | 60           | 2NO + 2NC             | 2NO + 2NC           | KRTPCN22-1 | 5935    | 7500 |
|      | 180          | 2NO + 2NC             | 2NO + 2NC           | KRTPCN22-3 | 6695    | 8180 |

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 [₹] |    |
|------|--------------|-----------------------|---------------------|-------------|---------|----|
|      |              | Timed Block           | Instantaneous Block |             | AC      | DC |
| PN   | 120          | 2NO + 2NC             | -                   | KRTPN20A-2R | 3665    | -  |
|      | 150          | 2NO + 2NC             | -                   | KRTPN20A-3R | 3665    | -  |

## Accessories for Time Delay Relay

^ 110V AC coil voltage, without knob

| Description                        | Cat.No.     | MRP [₹] | Lot Size |
|------------------------------------|-------------|---------|----------|
| Contact Block                      |             |         |          |
| 1NO+1NC Timed                      | SP20S3+     | 685     | 1        |
| 2NO+2NC Timed                      | SP20S4+     | 910     |          |
| 1NO+1NC Inst.                      | SP20S5+     | 685     |          |
| 2NO+2NC Inst.                      | SP20S6+     | 910     |          |
| Magnet Coil                        |             |         |          |
| AC-PN Relays                       | SP20MC ■    | 855     | 1        |
| AC-PNI & PCN Relays                | SP20MC1 ■   | 855     |          |
| DC Relays                          | SP20MC2 ■   | 2805    | 1        |
| Return Spring*                     |             |         |          |
| (PNI & PCN)                        | SP20RS      | 150     | 1        |
| Coil Clip*                         | SP20CC      | 250     |          |
| Magnet frame assembly without coil | SP20 MA/MA1 | 1425    | 1        |
| Knob Assembly                      | SP20KA      | 25      | 10       |

- 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 Code | U  | A   | B   | K   | M   |
| DC Suffix Code | U1 | A1  | B1  | K1  | -   |

+ These are supplied with plastic cover  
 \* For DC Timers only  
 ■ To complete suffix voltage code refer to the table

## Direct On Line Starters



- DOL upto 30 HP
- Heavy duty 4 Pole Contactor
- Wide Band Coil Voltages (190-400V, 220-240V, 380-415V)
- Encapsulated & Hermetically sealed coil
- Easy inspection & maintenance

## Auto Start Direct on line Starters

- 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



## Star Delta Starters



- Semi Automatic upto 25 HP
- Fully Automatic upto 375 HP
- Wide Band Coil Voltages ( 230-360V, 260-400V, 380-415V)
- Single Phase & Overload Protection

## 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

## Manual Star Delta Starters

- 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



## 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

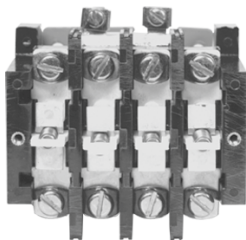


## Citation DOL Motor Starters (with 380/415 V coil)

| HP / KW     | Overload Relay Range (A) | Cat. No. SS ENCLOSURE | MRP [₹] | Cat. No. OPEN EXECUTION | MRP [₹] | Lot Size |
|-------------|--------------------------|-----------------------|---------|-------------------------|---------|----------|
| 0.5 / 0.37  | 0.72 - 1.14              | NADLEN                | 2615    | NADLENI                 | 2540    | 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                | NAKLENI | 2665                    |         |          |
| 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 [₹] | Shakti | MRP [₹] | Back Up Fuse (A) | Lot Size |
|--------------------------|--------|---------|--------|---------|------------------|----------|
| 2.4 - 3.8                | SAGZ   | 2000    | SAWPGZ | 1870    | 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   | 2140    | SAWPLZ | 1990    | 50               | 1        |
| 17.4 - 24.0              | SAMZ   | 2280    | SAWPMZ | 2090    | 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 [₹] | Shakti  | MRP [₹] | Back Up Fuse (A) | Lot Size |
|--------------------------|--------|---------|---------|---------|------------------|----------|
| 2.4 - 3.8                | SAGZI  | 1940    | SAWPGZI | 1810    | 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  | 2080    | SAWPLZI | 1930    | 50               | 1        |
| 17.4 - 24.0              | SAMZI  | 2205    | SAWPMZI | 2020    | 63               |          |

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



## Citation DOL Motor Starters in SS Enclosure (with 380/415 V coil)

### (A) With NHD Contactor

| Cat. No. | Overload Relay Range (A) | Contactor Type | Contactor Rating | HP / KW   | MRP [₹] |
|----------|--------------------------|----------------|------------------|-----------|---------|
| NAMLEN   | 17.4 - 24.0              | N0N            | 25A              | 15 / 11   | 4325    |
| NANLEN   | 22.0 - 30.0              | N1N            | 40A              | 20 / 15   | 7610    |
| NACT1LEN | 24.0 - 39.0              | N1N            | 40A              | 25 / 18.5 | 11675   |

### (B) With Citation D Contactor

|           |             |            |     |         |       |
|-----------|-------------|------------|-----|---------|-------|
| NACT2LEDM | 37.6 - 60.0 | Citation D | 40A | 30 / 22 | 11785 |
|-----------|-------------|------------|-----|---------|-------|

## Auto Start Direct on Line Starter in SS Enclosure with 230-400 V coil

| Overload Relay Range (A) | Standard Model Cat. No. | MRP [₹] Standard Model | Premium Model Cat. No. | MRP [₹] Premium Model | Lot Size |
|--------------------------|-------------------------|------------------------|------------------------|-----------------------|----------|
| 2.4-3.8                  | ASAGZ                   | 2675                   | ASXGZ                  | 3035                  | 1        |
| 3.8-6.0                  | ASAHZ                   |                        | ASXHZ                  |                       |          |
| 6.0-9.3                  | ASAJZ                   |                        | ASXJZ                  |                       |          |
| 8.9-13.5                 | ASAKZ                   |                        | ASXKZ                  |                       |          |
| 13.2-20                  | ASALZ                   | 2795                   | ASXLZ                  | 3180                  | 1        |
| 17.4-24                  | ASAMZ                   | 2975                   | ASXMZ                  | 3370                  | 1        |

For 380/415V replace 'Z' with 'N' in the Cat Code

### Mini Manual Motor Starter upto 4HP-1 Phase

(Surface Mtg.)

| Cat. No.   | Overload Relay Range (A) | 1 Phase/240V Recommended HP | MRP [₹] |
|------------|--------------------------|-----------------------------|---------|
| AMLE-10-SP | 0.23 - 0.47              | -                           | 860     |
| 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 [₹] |
|-------------|--------------------------|-----------------------------|---------|
| AMLEH-10-SP | 0.23 - 0.47              | -                           | 1130    |
| 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 [₹] |
|----------|--------------------------|-----------------------------|---------|
| AMLE-10  | 0.23 - 0.47              | -                           | 1155    |
| 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 [₹] |
|----------|--------------------------|-----------------------------|---------|
| AMLEN-10 | 0.23 - 0.47              | -                           | 1305    |
| 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                       |         |



## Citation Star Delta Starter



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

| Cat. No.       | Overload Relay Range (A) | Contactor Type | Contactor Rating | HP/KW     | MRP [₹] |
|----------------|--------------------------|----------------|------------------|-----------|---------|
| NASAGLEN       | 2.4 - 3.8                | C00N           | 16A              | 3 / 2.2   | 9650    |
| NASAHLEN       | 3.8 - 6.0                | C00N           | 16A              | 5 / 3.7   |         |
| NASAJLEN       | 6.0 - 9.3                | C00N           | 16A              | 10 / 7.5  |         |
| NASAKLEN       | 8.9 - 13.5               | C00N           | 16A              | 15 / 11   |         |
| NASAKLEN / LOR | 13.2 - 20.0              | C00N           | 16A              | 15 / 11   | 9790    |
| NASALLEN       | 13.2 - 20.0              | N0N            | 25A              | 20 / 15   | 11110   |
| NASAMLEN       | 17.4 - 24.0              | N0N            | 25A              | 25 / 18.5 | 11320   |
| NASANLEN       | 22.0 - 30.0              | N1N            | 40A              | 35 / 26   | 19700   |
| NASACT1LEN     | 24.4 - 39.0              | N1N            | 40A              | 40 / 30   | 24255   |

Note : For other Coil Voltages refer table on page 22

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

- Range upto 375 HP
- Semi Automatic & Fully Automatic Version
- High accuracy pneumatic timer in Fully Automatic Version

| Cat. No.     | Overload Relay Range (A) | Contactor Type(Citation) | Contactor Rating | HP/KW     | MRP [₹] |
|--------------|--------------------------|--------------------------|------------------|-----------|---------|
| NASACT1LEDM  | 24.0 - 39.0              | D                        | 40A              | 40 / 30   | 27870   |
| NASACT2LEDM  | 37.6 - 60.0              | D                        | 40A              | 50 / 37   | 28770   |
| NASACT2LEEM  | 37.6 - 60.0              | E                        | 70A              | 75 / 55   | 50050   |
| NASACT3LEEM  | 56.4 - 90.0              | E                        | 70A              | 85 / 65   | 53460   |
| NASACT3LEC5M | 56.4 - 90.0              | M-5                      | 110A             | 100 / 75  | 69380   |
| NASACT4LEC5M | 84.6 - 135.0             | M-5                      | 110A             | 135 / 100 | 70520   |
| NASACT4LENM  | 84.6 - 135.0             | N                        | 140A             | 150 / 110 | 73935   |
| NASACT5LEC6M | 131.6 - 210.0            | S                        | 300A             | 250 / 185 | 133240  |
| NASACT6LEC6M | 188.0 - 300.0            | S                        | 300A             | 375 / 280 | 150440  |

Note : For other Coil Voltages refer table on page 22

### Single Phase DOL with 2-P CPG Contactor & 2-P OLR (160-220V)

| Cat. No. | Overload Relay Range (A) | HP/KW    | MRP [₹] |
|----------|--------------------------|----------|---------|
| NAHBW-SP | 3.8 - 6.0                | 3 / 2.2  | 1590    |
| NAJBW-SP | 6.0 - 9.3                | 5 / 3.7  |         |
| NAKBW-SP | 8.9 - 13.5               | 10 / 7.5 |         |
| NALBW-SP | 13.2 - 20.0              | 15 / 11  | 1635    |

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

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

| Cat. No. SS Enclosure | Overload Relay Range (A) | Contactor Type | Contactor Rating | HP/KW     | MRP [₹] |
|-----------------------|--------------------------|----------------|------------------|-----------|---------|
| NASSGLEN              | 2.4 - 3.8                | C00N           | 16A              | 3 / 2.2   | 6420    |
| NASSHLEN              | 3.8 - 6.0                | C00N           | 16A              | 5 / 3.7   |         |
| NASSJLEN              | 6.0 - 9.3                | C00N           | 16A              | 10 / 7.5  |         |
| NASSKLEN              | 8.9 - 13.5               | C00N           | 16A              | 15 / 11   |         |
| NASSKLEN / LOR        | 13.0 - 20.0              | C00N           | 16A              | 15 / 11   | 6560    |
| NASSLLEN              | 13.2 - 20.0              | N0N            | 25A              | 20 / 15   | 9710    |
| NASSMLEN              | 17.4 - 24.0              | N0N            | 25A              | 25 / 18.5 | 9820    |
| NASSNLEN              | 22.0 - 30.0              | N1N            | 40A              | 35 / 26   | 17855   |

Note : For other Coil Voltages refer table on page 22

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

| Cat. No.     | Overload Relay Range (A) | HP/KW    | MRP [₹] |
|--------------|--------------------------|----------|---------|
| SASSGLEG     | 2.4 - 3.8                | 3 / 2.2  | 6030    |
| SASSHLEG     | 3.8 - 6.0                | 5 / 3.7  |         |
| SASSJLEG     | 6.0 - 9.3                | 10 / 7.5 |         |
| SASSKLEG     | 8.9 - 13.5               | 15 / 11  |         |
| SASSKLEG/LOR | 13.2 - 20.0              | 15 / 11  | 6170    |

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

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

| Cat. No. SS Enclosure | Overload Relay Range (A) | HP/KW    | MRP [₹] |
|-----------------------|--------------------------|----------|---------|
| SASAGLEG              | 2.4 - 3.8                | 3 / 2.2  | 6970    |
| SASAHLEG              | 3.8 - 6.0                | 5 / 3.7  |         |
| SASAJLEG              | 6.0 - 9.3                | 10 / 7.5 |         |
| SASAKLEG              | 8.9 - 13.5               | 15 / 11  |         |
| SASAKLEG/LOR          | 13.2 - 20.0              | 15 / 11  | 7130    |

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

## DOL Reversing Starter in SS Enclosure (with 380-415V Coil)

| Cat. No. | Overload Relay Range (A) | Contactors Type | Contactors Rating | HP / KW     | MRP [₹] |
|----------|--------------------------|-----------------|-------------------|-------------|---------|
| NARFLEN  | 1.58 - 2.50              | C00N            | 16A               | 1.00 / 0.75 | 7525    |
| NARGLEN  | 2.40 - 3.80              | C00N            | 16A               | 2.00 / 1.50 |         |
| NARHLEN  | 3.80 - 6.00              | C00N            | 16A               | 3.00 / 2.20 |         |
| NARJLEN  | 6.00 - 9.30              | C00N            | 16A               | 5.00 / 3.70 |         |
| NARKLEN  | 8.90 - 13.50             | C00N            | 16A               | 7.50 / 5.50 |         |
| NARLLEN  | 13.20 - 20.0             | N0N             | 25A               | 10.0 / 7.50 | 9175    |
| NARMLLEN | 17.40 - 24.0             | N1N             | 40A               | 15.0 / 11.0 | 9700    |
| NARNLEN  | 22.0 - 30.0              | N1N             | 40A               | 20.0 / 15.0 | 15245   |

## Manual Star Delta Starter (with 260-400 V Coil)

| Catalogue No. | HP                           | MRP [₹] |
|---------------|------------------------------|---------|
| HASSGLEG      | 3 HP                         | 3490    |
| HASSHLEG      | 5 HP                         | 3490    |
| HASSJLEG      | 10 HP                        | 3950    |
| HASSKLEG      | 15 HP                        | 3950    |
| HASSW15       | SWITCH FOR 15 HP MSD STARTER | 1900    |

For 380-415 V coil voltage replace suffix "G" with "N" in the Cat. Code

## Spares for Starter and Submersible Pump Starter

### Spares for Shakti Starters

| Description                              | Cat. No.     | MRP [₹] |
|--|--------------|---------|
| Contact Kit                              | SHA          | 685     |
| Coil 190- 400 V                          | SHZ          | 260     |
| Contact Carrier                          | SHCC         | 155     |
| Extended Button Assembly                 | SHPB         | 185     |
| Contactors for DOL                       | SHCO         | 1515    |
| Contactors for Star Delta                | SHACO        | 1515    |
| Autonit (for ASX & OISDY) 6 Wire         | CPNYAU*-5S   | 1000    |
| Autonit (for ASX & OISDY) 6 Wire         | CPNYAU*-5M   | 1000    |
| Terminal Block 30A 6 way (Auto DOL)      | CPTB630      | 155     |
| Auto Manual Switch 3 position (Auto DOL) | CPAMS-3P/ASX | 310     |

### Spares for Citation M Starters

| Description                             | Cat. No. | MRP [₹] |
|---|----------|---------|
| Start & Stop reset button unit assembly | SP100PB3 | 220     |
| Start actuator Block for DOL            | SP100CB  | 185     |
| Start actuator Block for SD             | SP100CBS | 185     |
| Terminal Block for Star/ Delta Starters | SP100TB  | 170     |
| Electronic Timer (Star Delta)           | SPSATG   | 1810    |

### Spares for 3 phase Submersible Pump Starter

| Description                   | Cat. No.          | MRP [₹] |
|-------------------------------|-------------------|---------|
| Autonit (2 Position) 3 Wire   | CPAU* - 5S or 5M  | 935     |
| Autonit (3 Position) 5 Wire   | CPYAU* - 5S or 5M | 935     |
| Ammeter 25A                   | CPAM25            | 375     |
| Ammeter 50A                   | CPAM50            | 375     |
| Ammeter 100A                  | CPAM100           | 385     |
| Voltmeter 500V                | CPVM500           | 375     |
| Electronic Timer (Star Delta) | SPSATG            | 1810    |
| Terminal Block 15A 2 way      | CPTB215           | 35      |
| Terminal Block 60A 3 way      | CPTB360           | 110     |
| Terminal Block 60A 6 way      | CPTB660           | 190     |
| Terminal Block 100A 3 way     | CPTB3100          | 440     |
| Mounting Bracket Set          | CPMB              | 80      |
| Auto Manual Switch 2 position | CPAMS-2P          | 235     |
| Auto Manual Switch 3 position | CPAMS-3P          | 255     |
| Voltmeter Selector Switch     | CPVSS             | 270     |

### Spares for 1 phase Submersible Pump Starter

| Description  | Cat. No. | MRP [₹] |
|--|----------|---------|
| On Indication Lamp                                     | ILR-B    | 60      |
| Ammeter 10A  | SPAM-10  | 375     |
| Ammeter 15A  | SPAM-15  | 375     |
| Ammeter 25A  | SPAM-25  | 385     |
| Ammeter 50A  | SPAM-50  | 385     |
| Voltmeter 300V   | SPVM-300 | 385     |
| Terminal Block 30A 5 way-1                             | CPTB530  | 75      |
| Terminal Block 30A 5 way-2                             | CPTB530H | 140     |
| Terminal Block 30A 3 way                               | CPTB330  | 50      |
| "ON" Push Button GREEN upto 24A relay range            | SPGC     | 185     |
| "ON" Push Button GREEN For 32A relay range             | SPGB     | 185     |
| "OFF" Push Button RED                                  | SPRC     | 145     |
| Add-on Terminal Block for 23-32A relay (outgoing side) | MC305TB4 | 80      |





Tough Products That  
**Cultivate**  
Success...



## Starters & Submersible Pump Panels

- ◆ Rugged heavy duty 4 pole & 2 pole contactor
- ◆ 190-400 V wide band moulded coil
- ◆ High reliable protection
- ◆ Fully weather proof powder coated enclosure
- ◆ Conforming to IS/IEC : 60947-4-1



**BCH ELECTRIC LIMITED**



## Submersible Pump Starter Panels



## Three Phase

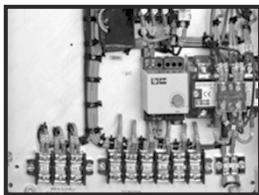
- Direct on line : upto 24 A relay rating
- Star Delta : upto 90 A relay rating
- Protections :
  - Phase failure
  - Phase imbalance
  - Phase reversal
- Short Circuit Protection Thru MCB : In case of Premium models
- Ammeter and Voltmeter
- On/Off and Trip indications
- Powder coated enclosure with PU gasket ensuring excellent finish and reliability
- Provision for connecting Dry run preventor



On/Trip Indicators



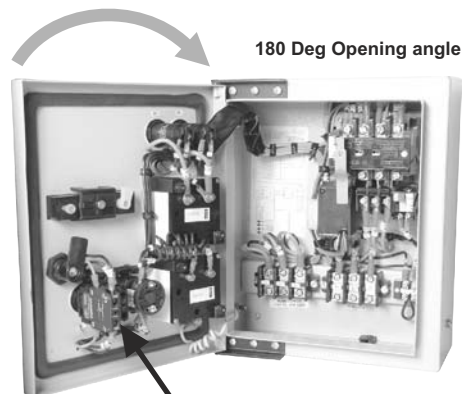
Isolated Terminal blocks for better termination



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



Phase indicators  
(For std & Premium models)



180 Deg Opening angle

PU Gasket for excellent sealing against dust & water



## 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 23.0 - 32.0 A Relay)

- Economy Model (With Ammeter)
- Standard Model (With Ammeter & Voltmeter)
- Provision for connecting dry run preventor

## Citation Submersible Pump Starter Panels with 2 Position Selection (with Auto Switch)

| Range          | Contactor Type | Contactor Rating | DOL  |         |   |         |
|----------------|----------------|------------------|--|---------|---|---------|
|                |                |                  | Economy (without Short Circuit Protection) |         | Premium (with Short Circuit Protection) |         |
|                |                |                  | Cat. No.                                   | MRP [₹] | Cat. No.                                | MRP [₹] |
| 2.4 - 3.8 Amp  | C00N           | 16 A             | CPEANAGN*                                  | 5630    | CPPANAGN*                               | 7815    |
| 3.8 - 6.0 Amp  | C00N           | 16 A             | CPEANAHN*                                  | 5630    | CPPANAGN*                               | 7815    |
| 6.0 - 9.3 Amp  | C00N           | 16 A             | CPEANAJN*                                  | 5630    | CPPANAJN*                               | 7815    |
| 8.9 - 13.5 Amp | C00N           | 16 A             | CPEANAKN*                                  | 5630    | CPPANAKN*                               | 7815    |
| 13.2 - 20 Amp  | C00N           | 16 A             | CPEANALN*                                  | 5845    | CPPANALN*                               | 8140    |
| 17.4 - 24 Amp  | N0N            | 25 A             | CPEANAMN                                   | 6075    | CPPANAMN                                | 8520    |

| Range          | Contactor Type | Contactor Rating | Star Delta                                 |         |   |         |
|----------------|----------------|------------------|--|---------|---|---------|
|                |                |                  | Economy (without Short Circuit Protection) |         | Premium (with Short Circuit Protection) |         |
|                |                |                  | Cat. No.                                   | MRP [₹] | Cat. No.                                | MRP [₹] |
| 6.0 - 9.3 Amp  | C00N           | 16 A             | CPSDEAJN*                                  | 10915   | CPSDPAJN*                               | 13070   |
| 8.9 - 13.5 Amp | C00N           | 16 A             | CPSDEAKN*                                  | 10915   | CPSDPAKN*                               | 13070   |
| 13.2 - 20 Amp  | N0N            | 25 A             | CPSDEALN                                   | 11290   | CPSDPALN                                | 13560   |
| 17.4 - 24 Amp  | N0N            | 25 A             | CPSDEAMN                                   | 11600   | CPSDPAMN                                | 13940   |
| 22 - 30 Amp    | N1N            | 40 A             | CPSDEANN                                   | 21475   | -                                       | -       |
| 24.4 - 39 Amp  | N1N            | 40 A             | CPSDEACT1N                                 | 21495   | -                                       | -       |

\*For 260-400 V coil voltage replace suffix "N" with "G" in the Cat. Code (for Starter with C00N & N0N contactors only)

N=380-415 V

For LV- 230-360V coil voltage, kindly contact nearest sales office

For Auto switch with 5 min time delay option, kindly contact nearest sales office

## Citation Submersible Pump Starter Panels with Meters & indicators (without Auto Switch)

| Range          | Contactor Type | Contactor Rating | DOL  |         |
|----------------|----------------|------------------|--|---------|
|                |                |                  | Economy (without Short Circuit Protection) |         |
|                |                |                  | Cat. No.                                   | MRP [₹] |
| 3.8 - 6.0 Amp  | C00N           | 16 A             | CPEANHNN*                                  | 5335    |
| 2.4 - 3.8 Amp  | C00N           | 16 A             | CPEANGNN*                                  | 5335    |
| 6.0 - 9.3 Amp  | C00N           | 16 A             | CPEANJNN*                                  | 5335    |
| 8.9 - 13.5 Amp | C00N           | 16 A             | CPEANKNN*                                  | 5335    |
| 13.2 - 20 Amp  | C00N           | 16 A             | CPEANLNN*                                  | 5555    |
| 17.4 - 24 Amp  | N0N            | 25 A             | CPEANANN                                   | 5790    |

| Range          | Contactor Type | Contactor Rating | Star Delta                                 |         |
|----------------|----------------|------------------|--|---------|
|                |                |                  | Economy (without Short Circuit Protection) |         |
|                |                |                  | Cat. No.                                   | MRP [₹] |
| 6.0 - 9.3 Amp  | C00N           | 16 A             | CPSDEJNN*                                  | 10745   |
| 8.9 - 13.5 Amp | C00N           | 16 A             | CPSDEKNN*                                  | 10745   |
| 13.2 - 20 Amp  | N0N            | 25 A             | CPSDELNN                                   | 11065   |
| 17.4 - 24 Amp  | N0N            | 25 A             | CPSDEMNN                                   | 11330   |
| 22 - 30 Amp    | N1N            | 40 A             | CPSDENNN                                   | 21220   |
| 24.4 - 39 Amp  | N1N            | 40 A             | CPSDECT1N                                  | 21600   |

\* For 260-400 V coil voltage replace suffix "N" with "G" in the Cat. Code (for Starter with C00N & N0N contactors only)

N=380-415 V

For LV- 230-360V coil voltage, kindly contact nearest sales office

## Citation Submersible Pump Starter Panels with 3 Position Selection (with Auto Switch)

| Range           | Contactor Type | Contactor Rating | DOL  |         |   |            |
|-----------------|----------------|------------------|--|---------|---|------------|
|                 |                |                  | Economy (without Short Circuit Protection) |         | Premium (with Short Circuit Protection) |            |
|                 |                |                  | Cat. No.                                   | MRP [₹] | Cat. No.                                | MRP [₹]    |
| 1.58 - 2.50 Amp | C00N           | 16 A             | CPEYNAFN*                                  | 5865    | --                                      | On request |
| 2.4 - 3.8 Amp   | C00N           | 16 A             | CPEYNAGN*                                  | 5865    | --                                      | On request |
| 3.8 - 6.0 Amp   | C00N           | 16 A             | CPEYNAHN*                                  | 5865    | --                                      | On request |
| 6.0 - 9.3 Amp   | C00N           | 16 A             | CPEYNAJN*                                  | 5865    | CPPYNAJN*                               | 8155       |
| 8.9 - 13.5 Amp  | C00N           | 16 A             | CPEYNAKN*                                  | 5865    | CPPYNAKN*                               | 8155       |
| 13.2 - 20 Amp   | C00N           | 16 A             | CPEYNALN*                                  | 6080    | CPPYNALN*                               | 8490       |
| 17.4 - 24 Amp   | N0N            | 25 A             | CPEYNAMN                                   | 6325    | CPPYNAMN                                | 8880       |

| Range          | Contactor Type | Contactor Rating | Star Delta                                 |         |   |            |
|----------------|----------------|------------------|--|---------|---|------------|
|                |                |                  | Economy (without Short Circuit Protection) |         | Premium (with Short Circuit Protection) |            |
|                |                |                  | Cat. No.                                   | MRP [₹] | Cat. No.                                | MRP [₹]    |
| 3.8 - 6.0 Amp  | C00N           | 16 A             | CPSDEYHN*                                  | 11335   | --                                      | On request |
| 6.0 - 9.3 Amp  | C00N           | 16 A             | CPSDEYJN*                                  | 11335   | CPSDPYJN*                               | 13375      |
| 8.9 - 13.5 Amp | C00N           | 16 A             | CPSDEYKN*                                  | 11335   | CPSDPYKN*                               | 13375      |
| 13.2 - 20 Amp  | N0N            | 25 A             | CPSDEYLN                                   | 11660   | CPSDPYLN                                | 13920      |
| 17.4 - 24 Amp  | N0N            | 25 A             | CPSDEYMN                                   | 11935   | CPSDPYMN                                | 14300      |
| 22 - 30 Amp    | N1N            | 40 A             | CPSDEYNN                                   | 21945   | CPSDPYNN                                | On request |
| 24.4 - 39 Amp  | N1N            | 40 A             | CPSDEYCT1N                                 | 23500   | CPSDPYCT1N                              | On request |
| 37.6 - 60 Amp  | Citation E     | 70 A             | CPSDEYCT2M                                 | 38000   | --                                      | On request |
| 56.4 - 90 Amp  | Citation M-5   | 110 A            | CPSDEYCT3M                                 | 52000   | --                                      | On request |

\*For 260-400 V coil voltage replace suffix "N" with "G" in the Cat. Code (for Starter with C00N & N0N contactors only)

N=380-415 V

For LV- 230-360V coil voltage, kindly contact nearest sales office

For Auto switch with 5 min time delay option, kindly contact nearest sales office

## Shakti DOL Submersible Pump Starter Panels (with Auto Switch)

|   |  | Cat. No. | Range          | MRP [₹] |
|---|--|----------|----------------|---------|
| Economy Version<br>(Without Short Circuit Protection) | 2 Position Selection<br>(Auto/ Bypass)             | CPEASAFZ | 1.58 - 2.5 Amp | 5090    |
|   |  | CPEASAGZ | 2.4 - 3.8 Amp  | 5090    |
|   |  | CPEASAHZ | 3.8 - 6.0 Amp  | 5090    |
|   |  | CPEASAJZ | 6.0 - 9.3 Amp  | 5090    |
|   |  | CPEASAKZ | 8.9 - 13.5 Amp | 5090    |
|   |  | CPEASALZ | 13.2 - 20 Amp  | 5535    |
|   |  | CPEASAMZ | 17.4 - 24 Amp  | 5820    |
|   | 3 Position Selection<br>(Manual - Manual SPP-Auto) | CPEYSAGZ | 2.4 - 3.8 Amp  | 5345    |
|   |  | CPEYSAHZ | 3.8 - 6.0 Amp  | 5345    |
|   |  | CPEYSAJZ | 6.0 - 9.3 Amp  | 5345    |
|   |  | CPEYSAKZ | 8.9 - 13.5 Amp | 5345    |
|   |  | CPEYSALZ | 13.2 - 20 Amp  | 5755    |
|   |  | CPEYSAMZ | 17.4 - 24 Amp  | 6085    |

For 380-415 V coil voltage replace suffix "Z" with "N" in the Cat. Code

For Auto switch with 5 min time delay option, kindly contact nearest sales office



## 1-Phase SPS With Mini Manual DOL Starter (With Ammeter + Voltmeter)

| Cat.          | HP              | Relay Range (Amp.) | Run Capacitor (mfd) | MRP [₹] |
|---------------|-----------------|--------------------|---------------------|---------|
| CPPM50-25-SP  | 0.5 HP/ 0.75 HP | 3.5 - 6.5 Amp      | 25                  | 2260    |
| CPPM50-20-SP  | 0.5 HP/ 0.75 HP | 3.5 - 6.5 Amp      | 20                  | 2260    |
| CPPM50H-25-SP | 0.5 HP/ 0.75 HP | 3.5 - 6.5 Amp      | 25                  | 2580    |
| CPPM60-36-SP  | 1 HP            | 6.8 - 11.7 Amp     | 36                  | 2280    |
| CPPM60-25-SP  |                 |                    | 25                  | 2280    |
| CPPM60H-36-SP |                 |                    | 36                  | 2600    |
| CPPM60-50-SP  | 1.5 HP          | 6.8 - 11.7 Amp     | 50                  | 2410    |
| CPPM60H-50-SP |                 |                    | 50                  | 2730    |
| CPPM70-50-SP  | 2 HP            | 11.0 - 20.0 Amp    | 50                  | 2450    |
| CPPM70-36-SP  |                 |                    | 36                  | 2450    |
| CPPM70H-50-SP |                 |                    | 50                  | 2780    |

## 1-Phase SPS With 2 Pole Contactor + Relay (With Ammeter) with 160-220 V Coil

| Cat.       | HP              | Relay Range (Amp.) | Run Capacitor (mfd) | Start Capacitor (mfd) | MRP [₹] |
|------------|-----------------|--------------------|---------------------|-----------------------|---------|
| CPNEHBW-SP | 0.5 HP/ 0.75 HP | 3.8 - 6.0 Amp      | 25                  | 80/100                | 3080    |
| CPNEJBW-SP | 1 HP            | 6.0 - 9.3 Amp      | 36                  | 100/120               | 3215    |
| CPNEKBW-SP | 1.5 HP          | 8.9 - 13.5 Amp     | 50                  | 120/150               | 3415    |
| CPNELBW-SP | 2 HP            | 13.2 - 20.0 Amp    | 36+36               | 150/200               | 3715    |
| CPNEMBW-SP | 3 HP            | 17.4 - 24.0 Amp    | 50+50               | 200/250               | 4355    |
| CPNEPBW-SP | 5 HP            | 23.0 - 32 Amp      | 50+50+50            | 200/250               | 6565    |

For Dry Run Protection (Extra Terminal shall be provided) Kindly add Rs. 155/- for up to 1.5 HP & add Rs. 250/- for 2 & 3 HP in above Prices & suffix "D" in the cat code (i.e. CPNEHBW-SPD)

## 1-Phase SPS With 2 Pole Contactor + Overload Relay (With Ammeter + Voltmeter) with 160-220 V Coil

| Cat.               | HP              | Relay Range (Amp.) | Contactor Rating | Run Capacitor (mfd) | Start Capacitor (mfd) | MRP [₹] |
|--------------------|-----------------|--------------------|------------------|---------------------|-----------------------|---------|
| CPNSHBW-SP         | 0.5 HP/ 0.75 HP | 3.8 - 6.0 Amp      | 16 Amp           | 25                  | 80/100                | 3350    |
| CPNSJBW-SP         | 1 HP            | 6.0 - 9.3 Amp      | 16 Amp           | 36                  | 100/120               | 3420    |
| CPNSJBW-RC20SC100  |                 |                    |                  | 20                  | 80/100                | 3450    |
| CPNSJBW-RC25SC100  |                 |                    |                  | 25                  | 80/100                | 3450    |
| CPNSJBW-RC50SC100  |                 |                    |                  | 50                  | 80/100                | 3520    |
| CPNSJBW-RC72SC150  |                 |                    |                  | 36+36               | 120/150               | 3800    |
| CPNSJBW-SP(RC30)   |                 |                    |                  | 30                  | 100/120               | 3450    |
| CPNSJBW-SP(RC50)   |                 |                    |                  | 50                  | 100/120               | 3520    |
| CPNSJBW-SP(SC100)  |                 |                    |                  | 36                  | 80/100                | 3550    |
| CPNSKBW-SP         |                 |                    |                  | 1.5 HP              | 8.9 - 13.5 Amp        | 16 Amp  |
| CPNSKBW-RC30SC120  | 30              | 100/120            | 3550             |                     |                       |         |
| CPNSKBW-RC36SC120  | 36              | 100/120            | 3590             |                     |                       |         |
| CPNSKBW-SP(RC36)   | 36              | 120/150            | 3680             |                     |                       |         |
| CPNSKBW-SP(RC72)   | 36+36           | 120/150            | 3720             |                     |                       |         |
| CPNSLBW-SP         | 2 HP            | 13.2 - 20.0 Amp    | 16 Amp           | 36+36               | 150/200               | 4025    |
| CPNSLBW-RC100SC150 |                 |                    |                  | 50+50               | 120/150               | 4060    |
| CPNSLBW-RC90SC150  |                 |                    |                  | 45+45               | 120/150               | 4060    |
| CPNSLBW-SP(SC150)  |                 |                    |                  | 36+36               | 120/150               | 4140    |
| CPNSMBW-SP         | 3 HP            | 17.4 - 24.0 Amp    | 25 Amp           | 50+50               | 200/250               | 4640    |
| CPNSPBW-SP         | 5 HP            | 23.0 - 32 Amp      | 40 A & 16 A      | 50+50+50            | 200/250               | 6890    |

For Dry Run Protection (Extra Terminal shall be provided) Kindly add Rs. 155/- for up to 1.5 HP & add Rs. 250/- for 2 & 3 HP in above Prices & suffix "D" in the cat code (i.e. CPNSHBW-SPD)

# Oil Immersed Starters ..... BCH

## Direct on Line

| Cat No.              | Relay Range | HRC Fuse Rating (EE Type) (max) | MRP [₹] |
|----------------------|-------------|---------------------------------|---------|
| OISWPGN<br>OISWPGT   | 2.4-3.8A    | 16A                             | 2030    |
| OISWPHN<br>OISWPHT   | 3.8-6.0A    | 20A                             | 2030    |
| OISWP JN<br>OISWP JT | 6.0-9.3A    | 25A                             | 2030    |
| OISWPKN<br>OISWPKT   | 8.9-13.5A   | 36A                             | 2030    |
| OISWPLN<br>OISWPLT   | 13.2-20A    | 50A                             | 2030    |
| OISWPMN<br>OISWPMT   | 17.4-24A    | 63A                             | 2245    |

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 [₹] |
|------------------------|-------------|---------------------------------|---------|
| OISDSWPJN<br>OISDSWPJT | 6.0-9.3A    | 20A                             | 5520    |
| OISDSWPKN<br>OISDSWPKT | 8.9-13.5A   | 32A                             | 5520    |
| OISDSWPLN<br>OISDSWPLT | 13.2-20A    | 35A                             | 5520    |
| OISDSWPMY              | 17.4-24A    | 50A                             | 5920    |
| OISDSWPPN<br>OISDSWPPY | 23-32A      | 63A                             | 6000    |



**Oil Star Delta Starter with Ammeter & Voltmeter**

## Fully Automatic Star Delta Starter with SPP & 2 positions Auto Manual Switch

| Cat No.   | Relay Range | HRC Fuse Rating (EE Type) (max) | MRP [₹] |
|-----------|-------------|---------------------------------|---------|
| OISDAWPJ* | 6 - 9.3A    | 20A                             | 6145    |
| OISDAWPK* | 8.9 - 13.5A | 32A                             | 6145    |
| OISDAWPL* | 13.2 - 20A  | 35A                             | 6145    |
| OISDAWPM* | 17.4 - 24A  | 56A                             | 6550    |
| OISDAWPP* | 23 - 32A    | 63A                             | 6640    |

## Fully Automatic Star Delta Starter with SPP & 3 positions Auto Manual Switch

| Cat No.   | Relay Range | HRC Fuse Rating (EE Type) (max) | MRP [₹] |
|-----------|-------------|---------------------------------|---------|
| OISDYWPJ* | 6 - 9.3A    | 20A                             | 7185    |
| OISDYWPK* | 8.9 - 13.5A | 32A                             | 7185    |
| OISDYWPL* | 13.2 - 20A  | 35A                             | 7185    |
| OISDYWPM* | 17.4 - 24A  | 56A                             | 7625    |
| OISDYWPP* | 23 - 32A    | 63A                             | 7685    |

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

## Spares for Oil Starter

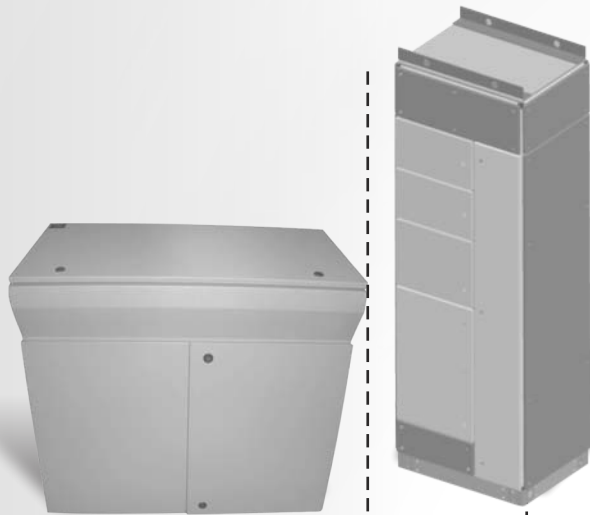
### Oil Immersed Starters



| Description   | Cat No.                                | MRP [₹] |
|---|--|---------|
| 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                                    | 315     |
| 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                 | 780     |
|   | M, P Relay - OCKSD30                   | 890     |
| Auxiliary Contact Kit set for Star Delta Starter  | Upto L Relay - OCKSDAUX20              | 170     |
|   | M, P Relay - OCKSDAUX30                | 170     |
| Coil - Main & Delta Contactor (220-400V)<br>(240-400V)<br>(380/415V)  | OCT<br>OCY<br>OCN                      | 335     |
| Coil - Star Contactor (220-400V)<br>(240-400V)<br>(380/415V)  | OCT - STAR<br>OCY - STAR<br>OCN - STAR | 225     |
| Overload Relay for Oil Starter - Pls refer along with all other Overload Relay Page 23  |  |         |

# Enclosure Systems

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

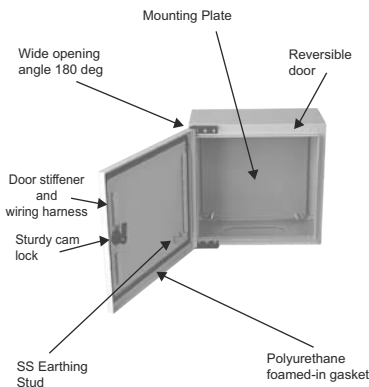


## Bhartia Boxes



- 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)<br>mm | IP-55 Range |           |                | IP-66 Range |                |
|-----------------|--------------------|-------------|-----------|----------------|-------------|----------------|
|                 |                    | MOQ Nos.    | Cat. No.  | List Price [₹] | Cat. No.    | List Price [₹] |
| SINGLE DOOR BOX | 200x200x150        | 1           | BIL-50000 | 1500           | BIL-60000   | 1550           |
| SINGLE DOOR BOX | 200x300x150        | 1           | BIL-50010 | 1805           | BIL-60010   | 1905           |
| SINGLE DOOR BOX | 250x300x150        | 1           | BIL-50020 | 1885           | BIL-60020   | 2000           |
| SINGLE DOOR BOX | 300x300x150        | 1           | BIL-50030 | 1990           | BIL-60030   | 2050           |
| SINGLE DOOR BOX | 300x300x200        | 1           | BIL-50050 | 2160           | BIL-60050   | 2375           |
| SINGLE DOOR BOX | 300x400x150        | 1           | BIL-50060 | 2250           | BIL-60060   | 2475           |
| SINGLE DOOR BOX | 300x400x200        | 1           | BIL-50080 | 2550           | BIL-60080   | 2670           |
| SINGLE DOOR BOX | 400x300x150        | 1           | BIL-50090 | 2210           | BIL-60090   | 2500           |
| SINGLE DOOR BOX | 400x300x200        | 1           | BIL-50110 | 2510           | BIL-60110   | 2620           |
| SINGLE DOOR BOX | 400x400x150        | 1           | BIL-50120 | 2530           | BIL-60120   | 2720           |
| SINGLE DOOR BOX | 400x400x200        | 1           | BIL-50140 | 2680           | BIL-60140   | 2945           |
| SINGLE DOOR BOX | 400x500x150        | 1           | BIL-50150 | 2840           | BIL-60150   | 3315           |
| SINGLE DOOR BOX | 400x500x200        | 1           | BIL-50170 | 3010           | BIL-60170   | 3320           |
| SINGLE DOOR BOX | 400x600x200        | 1           | BIL-50190 | 3680           | BIL-60190   | 3595           |
| SINGLE DOOR BOX | 500x600x200        | 1           | BIL-50210 | 4180           | BIL-60210   | 4120           |
| SINGLE DOOR BOX | 500x700x200        | 1           | BIL-50220 | 4755           |             |                |
| SINGLE DOOR BOX | 500x700x300        | 1           | BIL-50230 | 5440           |             |                |
| SINGLE DOOR BOX | 600x400x200        | 1           | BIL-50240 | 3780           | BIL-60240   | 4015           |
| SINGLE DOOR BOX | 600x400x300        | 1           | BIL-50250 | 4800           |             |                |
| SINGLE DOOR BOX | 600x500x200        | 1           | BIL-50260 | 4425           | BIL-60260   | 4800           |
| SINGLE DOOR BOX | 600x600x200        | 1           | BIL-50270 | 4650           |             |                |
| SINGLE DOOR BOX | 600x600x300        | 1           | BIL-50280 | 5350           |             |                |
| SINGLE DOOR BOX | 600x700x200        | 1           | BIL-50290 | 5365           |             |                |
| SINGLE DOOR BOX | 600x800x200        | 1           | BIL-50300 | 5650           |             |                |
| SINGLE DOOR BOX | 600x800x300        | 1           | BIL-50320 | 6170           |             |                |
| SINGLE DOOR BOX | 600x1000x200       | 1           | BIL-50330 | 6850           |             |                |
| SINGLE DOOR BOX | 600x1000x300       | 1           | BIL-50340 | 7690           |             |                |
| SINGLE DOOR BOX | 800x800x300        | 1           | BIL-50310 | 7415           |             |                |
| SINGLE DOOR BOX | 800x1000x200       | 1           | BIL-50350 | 8300           |             |                |
| SINGLE DOOR BOX | 800x1000x250       | 1           | BIL-50360 | 8600           |             |                |
| SINGLE DOOR BOX | 800x1000x300       | 1           | BIL-50390 | 8700           |             |                |
| SINGLE DOOR BOX | 800x1200x300       | 1           | BIL-50395 | 11000          |             |                |
| DOUBLE DOOR BOX | 1000x800x200       | 1           | BIL-50500 | 9115           |             |                |
| DOUBLE DOOR BOX | 1000x800x300       | 1           | BIL-50520 | 10430          |             |                |
| DOUBLE DOOR BOX | 1000x1000x300      | 1           | BIL-50540 | 11535          |             |                |
| DOUBLE DOOR BOX | 1000x1200x300      | 1           | BIL-50550 | 13210          |             |                |

MOQ. Minimum order quantity in nos.

| Type                                   | Cat. No. | MOQ | List Price [₹] |
|--|----------|-----|----------------|
| Set of Wall Mounting bracket ( small ) | BIL-WM-S | 1   | 90             |
| Set of Wall Mounting bracket ( big )   | BIL-WM-B | 1   | 115            |

Note :

- \* Set of wall mounting bracket (small) is suitable for all range of terminal boxes and Bhartia boxes upto size : 400x500x200mm.
- \* Set of wall mounting bracket (big) is suitable for Bhartia boxes beyond size : 400x500x200mm.

### 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 )
- 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
- 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

: Wall mounting bracket set is an additional accessory (for Bhartia Box & Terminal box it is not a part of standard packing)



- 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.
- 120 deg door open-able concealed hinge door with cam locking arrangement.

## 'BCH - SS' (Stainless Steel)

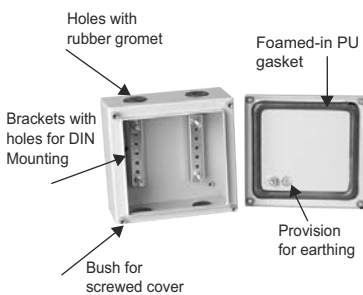
| Type            | Size (WxHxD) mm | MOQ Nos. | Cat No.      | List Price [₹] |
|-----------------|-----------------|----------|--------------|----------------|
| SINGLE DOOR BOX | 200X300X150     | 3        | BIL-90203015 | 4150           |
| SINGLE DOOR BOX | 300X300X200     | 3        | BIL-90303020 | 5750           |
| SINGLE DOOR BOX | 400X400X200     | 3        | BIL-90404020 | 7750           |
| SINGLE DOOR BOX | 400X500X200     | 3        | BIL-90405020 | 8770           |
| SINGLE DOOR BOX | 400X600X200     | 3        | BIL-90406020 | 10700          |
| SINGLE DOOR BOX | 500X600X200     | 3        | BIL-90506020 | 12800          |
| SINGLE DOOR BOX | 600X600X200     | 3        | BIL-90606020 | 13500          |
| SINGLE DOOR BOX | 600X800X200     | 3        | BIL-90608020 | 15800          |
| SINGLE DOOR BOX | 500X700X300     | 3        | BIL-90507030 | 16400          |
| SINGLE DOOR BOX | 800X800X300     | 3        | BIL-90808030 | 23500          |

**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 [₹] | Cat. No.    | List Price [₹] |
| 150x150x80           | 5           | BIL-70000 | 815            | BIL-80000   | 845            |
| 200x150x80           | -           |           |                | BIL-80100   | 935            |
| 300x150x80           | 5           | BIL-70010 | 970            | BIL-80010   | 1080           |
| 200x200x80           | 5           | BIL-70020 | 970            | BIL-80020   | 1050           |
| 300x200x80           | 5           | BIL-70030 | 1010           | BIL-80030   | 1100           |
| 400x200x80           | -           |           |                | BIL-80110   | 1125           |
| 600x200x80           | -           |           |                | BIL-80130   | 1525           |
| 150x150x120          | 5           | BIL-70040 | 900            | BIL-80040   | 965            |
| 200x150x120          | -           |           |                | BIL-80150   | 985            |
| 300x150x120          | 5           | BIL-70050 | 1050           | BIL-80050   | 1080           |
| 200x200x120          | 5           | BIL-70060 | 1055           | BIL-80060   | 1130           |
| 300x200x120          | 5           | BIL-70070 | 1170           | BIL-80070   | 1250           |
| 400x200x120          | 5           | BIL-70080 | 1320           | BIL-80080   | 1425           |
| 300x300x120          | 5           | BIL-70090 | 1400           | BIL-80090   | 1480           |
| 400x150x120          | -           |           |                | BIL-80170   | 1330           |
| 400x300x120          | 5           | BIL-70180 | 1725           | BIL-80180   | 1860           |
| 400x400x120          | 5           | BIL-70190 | 2000           | BIL-80190   | 2155           |
| 500x200x120          | 5           | BIL-70200 | 1640           | BIL-80200   | 1790           |
| 500x300x120          | 5           | BIL-70210 | 1985           | BIL-80210   | 2100           |
| 600x200x120          | 5           | BIL-70220 | 1760           | BIL-80220   | 1850           |
| 600x300x120          | 5           | BIL-70230 | 2140           | BIL-80230   | 2270           |
| 600x400x120          | 5           | BIL-70240 | 2460           | BIL-80240   | 2530           |
| 800x200x120          | 5           | BIL-70250 | 2485           | BIL-80250   | 2530           |
| 800x400x120          | 5           | BIL-70260 | 3125           | BIL-80260   | 3050           |

MOQ-Minimum order quantity in nos.



# Enclosure Systems

BCH

## Techno Modular Enclosures

| Size of Enclosure<br>(W x H x D in mm) | Cat. No.   | Enclosure Version* |                  |                  |                  | Plinth     |                   | Side Covers (Pair) |                   |
|--|------------|--------------------|------------------|------------------|------------------|------------|-------------------|--------------------|-------------------|
|  |            | Ver 001<br>LP[₹]   | Ver 002<br>LP[₹] | Ver 003<br>LP[₹] | Ver 004<br>LP[₹] | Cat. No.   | List Price<br>[₹] | Cat. No.           | List Price<br>[₹] |
| 600 x 1800 x 400                       | TME 061804 | 15540              | 17300            | 12390            | 14250            | TPL 061804 | 1540              | TSC 061804         | 3075              |
| 800 x 1800 x 400                       | TME 081804 | 18690              | 20475            | 14385            | 16535            | TPL 081804 | 1750              | TSC 081804         | 3075              |
| 1000 x 1800 x 400                      | TME 101804 | 25575              | 27715            | 19795            | 21720            | TPL 101804 | 1960              | TSC 101804         | 3075              |
| 1200 x 1800 x 400                      | TME 121804 | 29575              | 32755            | 22255            | 24700            | TPL 121804 | 2120              | TSC 121804         | 3075              |
| 600 x 1800 x 500                       | TME 061805 | 16590              | 18270            | 13440            | 15120            | TPL 061805 | 1650              | TSC 061805         | 3700              |
| 800 x 1800 x 500                       | TME 081805 | 19320              | 21735            | 15435            | 17220            | TPL 081805 | 1855              | TSC 081805         | 3700              |
| 1000 x 1800 x 500                      | TME 101805 | 26710              | 28410            | 21095            | 23215            | TPL 101805 | 2015              | TSC 101805         | 3700              |
| 1200 x 1800 x 500                      | TME 121805 | 29960              | 33920            | 23955            | 26290            | TPL 121805 | 2175              | TSC 121805         | 3700              |
| 800 x 1800 x 600                       | TME 081806 | 20580              | 22500            | 16750            | 18795            | TPL 081806 | 1910              | TSC 081806         | 3900              |
| 600 x 2000 x 400                       | TME 062004 | 16800              | 18850            | 13180            | 15595            | TPL 062004 | 1540              | TSC 062004         | 3285              |
| 800 x 2000 x 400                       | TME 082004 | 19900              | 21420            | 15175            | 17275            | TPL 082004 | 1750              | TSC 082004         | 3285              |
| 1000 x 2000 x 400                      | TME 102004 | 28515              | 30105            | 22155            | 23745            | TPL 102004 | 1960              | TSC 102004         | 3285              |
| 1200 x 2000 x 400                      | TME 122004 | 29950              | 33155            | 24505            | 27765            | TPL 122004 | 2120              | TSC 122004         | 3285              |
| 600 x 2000 x 500                       | TME 062005 | 18150              | 19655            | 15195            | 16485            | TPL 062005 | 1650              | TSC 062005         | 4000              |
| 800 x 2000 x 500                       | TME 082005 | 19950              | 22000            | 15645            | 17720            | TPL 082005 | 1855              | TSC 082005         | 4000              |
| 1000 x 2000 x 500                      | TME 102005 | 29150              | 30925            | 22470            | 24555            | TPL 102005 | 2015              | TSC 102005         | 4000              |
| 1200 x 2000 x 500                      | TME 122005 | 31695              | 33815            | 24220            | 27400            | TPL 122005 | 2175              | TSC 122005         | 4000              |
| 600 x 2000 x 600                       | TME 062006 | 18460              | 20240            | 16065            | 17405            | TPL 062006 | 1750              | TSC 062006         | 4255              |
| 800 x 2000 x 600                       | TME 082006 | 21250              | 22470            | 16905            | 18430            | TPL 082006 | 1910              | TSC 082006         | 4255              |
| 1000 x 2000 x 600                      | TME 102006 | 29500              | 32860            | 22790            | 26670            | TPL 102006 | 2120              | TSC 102006         | 4255              |
| 1200 x 2000 x 600                      | TME 122006 | 32000              | 34875            | 25390            | 28565            | TPL 122006 | 2280              | TSC 122006         | 4255              |
| 600 x 2000 x 800                       | TME 062008 | 18955              | 20370            | 15805            | 17800            | TPL 062008 | 1910              | TSC 062008         | 5250              |
| 800 x 2000 x 800                       | TME 082008 | 21895              | 23575            | 17900            | 19635            | TPL 082008 | 2120              | TSC 082008         | 5250              |
| 1000 x 2000 x 800                      | TME 102008 | 31450              | 33550            | 23490            | 26670            | TPL 102008 | 2280              | TSC 102008         | 5250              |
| 1200 x 2000 x 800                      | TME 122008 | 32400              | 36645            | 27090            | 29875            | TPL 122008 | 2490              | TSC 122008         | 5250              |
| 600 x 2200 x 600                       | TME 062206 | 20750              | 22725            | 16455            | 19545            | TPL 062206 | 1750              | TSC 062206         | 5000              |
| 800 x 2200 x 600                       | TME 082206 | 23500              | 25000            | 18875            | 20845            | TPL 082206 | 1910              | TSC 082206         | 5000              |
| 1000 x 2200 x 600                      | TME 102206 | 32525              | 35070            | 26725            | 29245            | TPL 102206 | 2120              | TSC 102206         | 5000              |
| 1200 x 2200 x 600                      | TME 122206 | 33810              | 37695            | 25830            | 28770            | TPL 122206 | 2280              | TSC 122206         | 5000              |
| 600 x 2200 x 800                       | TME 062208 | 22635              | 24565            | 17355            | 20035            | TPL 062208 | 1910              | TSC 062208         | 6500              |
| 800 x 2200 x 800                       | TME 082208 | 27275              | 28875            | 20975            | 22890            | TPL 082208 | 2120              | TSC 082208         | 6500              |
| 1000 x 2200 x 800                      | TME 102208 | 34600              | 36700            | 28090            | 30185            | TPL 102208 | 2280              | TSC 102208         | 6500              |
| 1200 x 2200 x 800                      | TME 122208 | 37495              | 39550            | 30695            | 32755            | TPL 122208 | 2490              | TSC 122208         | 6500              |

\*Baying kit (BIL-14280) Rs. 1050/- 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



# Smartline Modular Enclosure ..... BCH

## SmartLine TME

| Size of Enclosure<br>(W x H x D in mm) | Cat. No.   | Enclosure Version* |                   |                   |                   | Plinth     |                   | Side Covers (Pair) |                   |
|--|------------|--------------------|-------------------|-------------------|-------------------|------------|-------------------|--------------------|-------------------|
|  |            | Ver 001<br>LP [₹]  | Ver 002<br>LP [₹] | Ver 003<br>LP [₹] | Ver 004<br>LP [₹] | Cat. No.   | List Price<br>[₹] | Cat. No.           | List Price<br>[₹] |
| 600 x 1800 x 500                       | SLE 061805 | 14510              | 16710             | 12495             | 14300             | TPL 061805 | 1650              | SLSC 061805        | 2800              |
| 800 x 1800 x 600                       | SLE 081806 | 18235              | 20725             | 14830             | 17310             | TPL 081806 | 1910              | SLSC 081806        | 3200              |
| 600 x 2000 x 600                       | SLE 062006 | 15840              | 18390             | 13785             | 15555             | TPL 062006 | 1750              | SLSC 062006        | 3480              |
| 800 x 2000 x 600                       | SLE 082006 | 18300              | 21195             | 15350             | 17460             | TPL 082006 | 1910              | SLSC 082006        | 3480              |
| 1200 x 2000 x 600                      | SLE 122006 | 26135              | 29785             | 22470             | 25015             | TPL122006  | 2280              | SLSC 122006        | 3480              |
| 600 x 2000 x 800                       | SLE 062008 | 16180              | 19375             | 14650             | 16510             | TPL 062008 | 1910              | SLSC 062008        | 4350              |
| 800 x 2000 x 800                       | SLE 082008 | 19040              | 21895             | 16120             | 18730             | TPL 082008 | 2120              | SLSC 082008        | 4350              |
| 1200 x 2000 x 800                      | SLE 122008 | 27550              | 32210             | 23050             | 25835             | TPL 122008 | 2490              | SLSC 122008        | 4350              |

Note : Cutout / customization charges will be extra.

\*Baying kit (**BIL-14280**) Rs. 1050/- is also available for Enclosure Version. For extra accessories, please contact nearest branch office.

## 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

- IP-54 degree of protection
- Fabricated from CRCA/GPSP (frame made up of GPSP, doors & covers made up of CRCA sheet).
- Modular construction
- Mounting plate and cable entry plate made up of Galvanized steel [Unpainted]
- Plinth (optional) 100mm high fabricated from CRCA sheet.
- 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 leaf door



## 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 7035) 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 2/1.6 mm CRCA/GPSP (frame made up of 2.0mm GPSP, doors & covers made up of 1.6 mm CRCA).
- Fully bolted construction
- Mounting plate 3mm thick - standard & Powder Coated to RAL-2000
- Plinth (optional) 100mm high fabricated from 2mm
- 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** Compartmentalized MCC / PCC / PMCC Solution

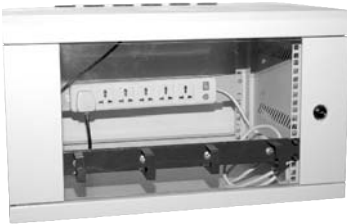


- 100% Modular Structure; can be dispatched into flat pack.
- Flexible Horizontal/Vertical busbar and Cable Compartment Configuration.
- Compartmentalised- upto Form 4.
- IP 54 with polyurethane foam gasketing.
- Doors available in height of 200mm & multiples of 100mm.
- Horizontal Busbar chambers, Vertical 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-7035 (structure finish) for structure, covers & doors. RAL-2000 (smooth finish) for Mtg. Plate, RAL-9000 (smooth finish) for Plinth and lifting channel.
- Sheet thickness 2.0mm GPSP for Structure, 2.0mm CRCA for mtg plate & mtg rail, 1.6mm CRCA for Covers & Doors, 1.2mm CRCA for Separation Plates.

## **BCH** Control Desk



## 19" Wall Mount Racks



### 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.
- Power coated to shade RAL : 7035 structure finish.

| Dimensions (H x W x D) mm | MOQ Nos. | Cat. No.      | List Price [₹] |
|---------------------------|----------|---------------|----------------|
| 6UX550X400                | 1        | BIL-W-6-5504  | 3230           |
| 9UX550X400                | 1        | BIL-W-9-5504  | 3705           |
| 6UX550X500                | 1        | BIL-W-6-5505  | 3565           |
| 9UX550X500                | 1        | BIL-W-9-5505  | 4145           |
| 12UX550X500               | 1        | BIL-W-12-5505 | 4610           |
| 15UX550X500               | 1        | BIL-W-15-5505 | 5420           |

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

## 19" Networking 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.
- Power coated to shade RAL : 7035 structure finish.

| Dimensions (H x W x D) mm | MOQ Nos. | Cat. No.     | List Price [₹] |
|---------------------------|----------|--------------|----------------|
| 24U X 600 X 600           | 1        | BIL-N-062406 | 18060          |
| 24U X 600 X 800           | 1        | BIL-N-062408 | 19960          |
| 24U X 800 X 600           | 1        | BIL-N-082406 | 22625          |
| 24U X 800 X 800           | 1        | BIL-N-082408 | 24715          |
| 30U X 600 X 600           | 1        | BIL-N-063006 | 19960          |
| 30U X 600 X 800           | 1        | BIL-N-063008 | 21860          |
| 30U X 800 X 600           | 1        | BIL-N-083006 | 24715          |
| 30U X 800 X 800           | 1        | BIL-N-083008 | 27090          |
| 36U X 600 X 600           | 1        | BIL-N-063606 | 21860          |
| 36U X 600 X 800           | 1        | BIL-N-063608 | 24235          |
| 36U X 800 X 600           | 1        | BIL-N-083606 | 27090          |
| 36U X 800 X 800           | 1        | BIL-N-083608 | 29465          |
| 42U X 600 X 600           | 1        | BIL-N-064206 | 25190          |
| 42U X 600 X 800           | 1        | BIL-N-064208 | 26990          |
| 42U X 800 X 600           | 1        | BIL-N-084206 | 29750          |
| 42U X 800 X 800           | 1        | BIL-N-084208 | 32790          |
| 45U X 600 X 600           | 1        | BIL-N-064506 | 28990          |
| 45U X 600 X 800           | 1        | BIL-N-064508 | 30415          |
| 45U X 800 X 600           | 1        | BIL-N-084506 | 31840          |
| 45U X 800 X 800           | 1        | BIL-N-084508 | 34695          |

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](http://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
- locking in extra wide (800mm) racks.
- Power coated to shade RAL : 7035 structure finish.

| Dimensions (H x W x D) mm | MOQ Nos. | Cat. No.     | List Price [₹] |
|---------------------------|----------|--------------|----------------|
| 24U X 600 X 900           | 1        | BIL-S-062409 | 20390          |
| 24U X 600 X 1000          | 1        | BIL-S-062410 | 21670          |
| 30U X 600 X 900           | 1        | BIL-S-063009 | 23050          |
| 30U X 600 X 1000          | 1        | BIL-S-063010 | 23950          |
| 36U X 600 X 900           | 1        | BIL-S-063609 | 25285          |
| 36U X 600 X 1000          | 1        | BIL-S-063610 | 26615          |
| 42U X 600 X 900           | 1        | BIL-S-064209 | 28420          |
| 42U X 600 X 1000          | 1        | BIL-S-064210 | 30225          |
| 42U X 800 X 1000          | 1        | BIL-S-084210 | 34785          |
| 45U X 600 X 900           | 1        | BIL-S-064509 | 32855          |
| 45U X 600 X 1000          | 1        | BIL-S-064510 | 34760          |

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 as std. BOM
- Provision for power & detachable Cable entry/exit in top & bottom.
- Power coated to shade RAL : 7035 structure finish.

## ETSI Racks

| Dimensions (H x W x D) mm | MOQ Nos. | Cat. No.   | List Price [₹] |
|---------------------------|----------|------------|----------------|
| 2200 X 600 x 300          | 1        | ITE-062203 | 7320           |
| 2200 X 600 x 600          | 1        | ITE-062206 | 11790          |

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.



### Key Attributes:

- 1-Pair of vertical cable manager is default design.
- Surface pretreated and advance powder coated
- Grouting bolts as std. BOM.
- Power coated to shade RAL : 7035 structure finish.

## 19" Open Racks

| Dimensions (H x W ) mm | MOQ Nos. | Cat. No.    | List Price [₹] |
|------------------------|----------|-------------|----------------|
| 36U X 600              | 1        | ITE-OF-0636 | 4750           |
| 45U X 600              | 1        | ITE-OF-0645 | 5610           |

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](http://www.bchindia.com/technorack)

## Accessories for 19" Racks

### Fixed Shelf/Stationary Shelf

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

### Key-Board Tray

- Sliding & rotatory type.

### Canteliver Shelf

- It can accommodate 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)

### Shelves

| Description                         | Cat No.       | List Price [₹] |
|-------------------------------------|---------------|----------------|
| Fixed Shelf (600mmD)                | BIL-A-FS-L-06 | 825            |
| Fixed Shelf (800mmD)                | BIL-A-FS-L-08 | 1265           |
| Fixed Shelf (900mmD)                | BIL-A-FS-L-09 | 1410           |
| Fixed Shelf (1000mmD)               | BIL-A-FS-L-10 | 1510           |
| Modem Tray                          | BIL-A-MD      | 780            |
| Key board tray (Sliding & Rotatory) | BIL-A-KB-06   | 2430           |
| Canteliver Shelf (1U)               | BIL-A-CS-1    | 485            |
| Canteliver Shelf (2U)               | BIL-A-CS-2    | 730            |
| Equipment Support Angle (600mmD)    | BIL-A-ESA-06  | 290            |
| Equipment Support Angle (800mmD)    | BIL-A-ESA-08  | 340            |
| Equipment Support Angle (900mmD)    | BIL-A-ESA-09  | 425            |
| Equipment Support Angle (1000mmD)   | BIL-A-ESA-10  | 490            |
| Sliding Shelf (900mmD)              | BIL-A-SS-09   | 2430           |
| Sliding Shelf (1000mmD)             | BIL-A-SS-10   | 2525           |

### Thermal Management

| Description                | Cat No.         | List Price [₹] |
|----------------------------|-----------------|----------------|
| 1-Fan (Direct mounted)     | BIL-A-SF        | 825            |
| Fan-tray with 2-Fans (FHU) | BIL-A-FHU-2FANS | 1750           |
| Fan-tray with 4-Fans (FHU) | BIL-A-FHU-4FANS | 3060           |

### Cable Management

| Description                   | Cat No.       | List Price [₹] |
|-------------------------------|---------------|----------------|
| Horizontal Cable Manager (1U) | BIL-A-HCM-1U  | 195            |
| Horizontal Cable Manager (2U) | BIL-A-HCM-2U  | 245            |
| Vertical Cable Manager (24U)  | BIL-A-VCM-24U | 290            |
| Vertical Cable Manager (30U)  | BIL-A-VCM-30U | 390            |
| Vertical Cable Manager (36U)  | BIL-A-VCM-36U | 435            |
| Vertical Cable Manager (42U)  | BIL-A-VCM-42U | 485            |
| Vertical Cable Manager (45U)  | BIL-A-VCM-45U | 535            |

### Power Management

| Description                                  | Cat No.           | List Price [₹] |
|--|-------------------|----------------|
| 6-Point 5Amp Horizontal Power Strip (19")    | BIL-A-HPS-5AMP    | 795            |
| 5-Point 5/15Amp Horizontal Power Strip (19") | BIL-A-HPS-15AMP   | 1070           |
| 12-Point 5Amp Vertical Power Strip           | BIL-A-12VPS-5AMP  | 1555           |
| 10-Point 5/15Amp Vertical Power Strip        | BIL-A-10VPS-15AMP | 1800           |
| Earth continuity Kit (Earthing Kit)          | BIL-A-ECT         | 605            |

### Stability Management

| Description                | Cat No.      | List Price [₹] |
|----------------------------|--------------|----------------|
| Castors (1-Set) Heavy Duty | BIL-A-CAS-HD | 2870           |
| Castors (1-Set) Light Duty | BIL-A-CAS    | 1700           |
| Levelling Feet (1-Set)     | BIL-A-LF     | 245            |
| Stability Plate            | BIL-A-SP     | 1460           |

### Miscellaneous

| Description                 | Cat No.              | List Price [₹] |
|-----------------------------|----------------------|----------------|
| BAYING KIT                  | BIL-A-BK             | 275            |
| BLANKING PANEL (1U)         | BIL-A-BP-1U          | 105            |
| BLANKING PANEL (2U)         | BIL-A-BP-2U          | 135            |
| BLANKING PANEL (3U)         | BIL-A-BP-3U          | 185            |
| BLANKING PANEL (4U)         | BIL-A-BP-4U          | 270            |
| BLANKING PANEL (5U)         | BIL-A-BP-5U          | 320            |
| Captive H/w (set of 10)     | BIL-A-Captive-M6     | 135            |
| Wallmounting H/w (set of 4) | BIL-A-wallmounting W | 145            |

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

\*Refer Enclosure Selling Terms & Conditions on page no 111.



# Wires & Cables

- **Special Application Cables & Thermocouples**
- **3-Core Flat Cables for Submersible Pump Applications**
- **Single & Multi Core PVC Flexible Cables**
- **FR & FRLS Cables**



BCH Three Core Flat Cables with annealed bare & bunched copper conductor insulated & sheathed with PVC for submersible pump motors for voltage grade 1100 V as per I.S. 694 / 1990 upto 4.0 sqmm, conforming to & marked with I.S. 694 / 1990 upto 4.0 sqmm & generally conforming to I.S. 694 / 1990 above 3 core 4.0 sqmm.

### 3 Core Flat Cable PVC Insulated Type CS- 500 Mtrs

| BCH Code | Flat Cable                   | LP Per 500 Mtrs in [₹] |
|----------|------------------------------|------------------------|
| CS0010BM | 1.0 Sqmm x 3 core Flat cable | 30395                  |
| CS0015BM | 1.5 Sqmm x 3 core Flat cable | 35840                  |
| CS0025BM | 2.5 Sqmm x 3 core Flat cable | 57205                  |
| CS0040BM | 4.0 Sqmm x 3 core Flat cable | 86250                  |
| CS0060BM | 6.0 Sqmm x 3 core Flat cable | 128565                 |
| CS0080BM | 8.0 Sqmm x 3 core Flat cable | 183870                 |
| CS0100BM | 10 Sqmm x 3 core Flat cable  | 215680                 |
| CS0160BM | 16 Sqmm x 3 core Flat cable  | 340500                 |
| CS0250BM | 25 Sqmm x 3 core Flat cable  | 520050                 |
| CS0350BM | 35 Sqmm x 3 core Flat cable  | 721500                 |

BCH Three Core Flat Cables with annealed bare & bunched copper conductor insulated & thick sheathed with PVC for submersible pump motors for voltage grade 1100 V as per I.S. 694 / 1990 upto 4.0 sqmm, conforming to & marked with I.S. 694 / 1990 upto 4.0 sqmm & generally conforming to I.S. 694 / 1990 above 3 core 4.0 sqmm. with higher insulation & sheath thicknesses

### 3 Core Flat Cable PVC Insulated Thick Type CFT- 500 Mtrs

| BCH Code      | Flat Cable                         | LP Per 500 Mtrs in [₹] |
|---------------|------------------------------------|------------------------|
| CFT-03-0010BM | 1.0 Sqmm x 3 core Flat cable Thick | 31500                  |
| CFT-03-0015BM | 1.5 Sqmm x 3 core Flat cable Thick | 39000                  |
| CFT-03-0025BM | 2.5 Sqmm x 3 core Flat cable Thick | 61000                  |
| CFT-03-0040BM | 4.0 Sqmm x 3 core Flat cable Thick | 91000                  |
| CFT-03-0060BM | 6.0 Sqmm x 3 core Flat cable Thick | 133500                 |
| CFT-03-0100BM | 10 Sqmm x 3 core Flat cable Thick  | 223000                 |
| CFT-03-0160BM | 16 Sqmm x 3 core Flat cable Thick  | 350000                 |

BCH Three Core Flat Cables with annealed bare & bunched copper conductor XLPE insulated & sheathed with abrasion resistant PVC for submersible pump motors of voltage grade 1100 V. suitable for heavy duty usage and areas having frequent supply undervoltage / overvoltage conditions.

### 3 Core Flat Cable XLPE Insulated Type CFTX- 500 Mtrs

| BCH Code       | Flat Cable  | LP Per 500 Mtrs in [₹] |
|----------------|---|------------------------|
| CFTX-03-0015BM | 1.5 Sqmm x 3 core Flat cable XLPE insulated Thick | 41000                  |
| CFTX-03-0025BM | 2.5 Sqmm x 3 core Flat cable XLPE insulated Thick | 64500                  |
| CFTX-03-0040BM | 4.0 Sqmm x 3 core Flat cable XLPE insulated Thick | 96750                  |
| CFTX-03-0060BM | 6.0 Sqmm x 3 core Flat cable XLPE insulated Thick | 139000                 |
| CFTX-03-0100BM | 10 Sqmm x 3 core Flat cable XLPE insulated Thick  | 229000                 |
| CFTX-03-0160BM | 16 Sqmm x 3 core Flat cable XLPE insulated Thick  | 360500                 |

## Single & Multi Core PVC Flexible Cables As Per IS 694: 1990 - With ISI Marking

- Individual conductors drawn from 99.98% bright electrolytic grade copper with more than 100% conductivity
- Special formulation of PVC compounds as per IS 5831:1984 ensures longer and trouble free service life.
- Use only RoHS insulation and sheathing compounds. Ensures cleaner environment and better health.
- Online measurement and monitoring of O.D., core dia and dielectric strength.
- Suitable for -15 to +70°C.

| Cat. No.                                   | Conductor Area (nominal) | Safe Current Carrying Capacity 2 wires, Single Phase |   | Price Per 100 mtrs |
|--|--------------------------|--|---|--------------------|
|  |                          | In conduit / Trunking                                | Unenclosed clipped directly to a surface or on cable tray |                    |
| <b>Single Core</b>                         | (Sq. mm)                 | (Amp.)   | (Amp.)  | in [₹]             |
| CR01-0005A-AAA                             | 0.5                      | 4  | 4.5   | 675                |
| CR01-0008A-AAA                             | 0.75                     | 7  | 8   | 956                |
| CR01-0010A-AAA                             | 1                        | 11   | 12  | 1225               |
| CR01-0015A-AAA                             | 1.5                      | 13   | 16  | 1759               |
| CR01-0025A-AAA                             | 2.5                      | 18   | 22  | 2891               |
| CR01-0040A-AAA                             | 4                        | 24   | 29  | 4505               |
| CR01-0060A-AAA                             | 6                        | 31   | 37  | 6787               |
| CR01-0100A-AAA                             | 10                       | 42   | 51  | 11433              |
| CR01-0160A-AAA                             | 16                       | 57   | 68  | 18281              |
| CR01-0250A-AAA                             | 25                       | 71   | 86  | 28974              |
| CR01-0350A-AAA                             | 35                       | 91   | 100   | 39974              |
| CR01-0500A-AAA                             | 50                       | 120  | 145   | 58908              |
| <b>Generally Conforming to IS 694:1990</b> |                          |  |   |                    |
| CR01-0700A-AAA                             | 70                       | -  | 214   | 82731              |
| CR01-0950A-AAA                             | 95                       | -  | 260   | 109078             |
| CR01-1200A-AAA                             | 120                      | -  | 305   | 139838             |
| CR01-1500A-AAA                             | 150                      | -  | 355   | 176267             |
| CR01-1850A-AAA                             | 185                      | -  | 415   | 253825             |
| CR01-2400A-AAA                             | 240                      | -  | 500   | 296129             |
| CR01-3000A-AAA                             | 300                      | -  | 560   | 370161             |

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

## Single Core FR Cables As Per IS 694: 1990 - With ISI Marking

| Cat. No.           | Conductor Area (nominal) | Safe Current Carrying Capacity 2 wires, Single Phase |   | Price Per 100 mtrs |
|--------------------|--------------------------|--|---|--------------------|
|                    |                          | In conduit / Trunking                                | Unenclosed clipped directly to a surface or on cable tray |                    |
| <b>Single Core</b> | (Sq. mm)                 | (Amp.)   | (Amp.)  | in [₹]             |
| CRFR01-0005A-AAA   | 0.5                      | 4  | 4.5   |                    |
| CRFR01-0008A-AAA   | 0.75                     | 7  | 8   |                    |
| CRFR01-0010A-AAA   | 1                        | 11   | 12  |                    |
| CRFR01-0015A-AAA   | 1.5                      | 13   | 16  |                    |
| CRFR01-0025A-AAA   | 2.5                      | 18   | 22  |                    |
| CRFR01-0040A-AAA   | 4                        | 24   | 29  |                    |
| CRFR01-0060A-AAA   | 6                        | 31   | 37  |                    |
| CRFR01-0100A-AAA   | 10                       | 42   | 51  |                    |
| CRFR01-0160A-AAA   | 16                       | 57   | 68  |                    |
| CRFR01-0250A-AAA   | 25                       | 71   | 86  |                    |
| CRFR01-0350A-AAA   | 35                       | 91   | 100   |                    |
| CRFR01-0500A-AAA   | 50                       | 120  | 145   |                    |

Note: Standard packing of 100m, 90m & 180m available. For prices of 90m & 180m, please contact nearest sales office.

## Single Core FRLS Cables As Per IS 694: 1990 - With ISI Marking

| Cat. No.           | Conductor Area (nominal) | Safe Current Carrying Capacity 2 wires |   | Price Per 100 mtrs |
|--------------------|--------------------------|--|---|--------------------|
|                    |                          | In conduit / Trunking                  | Unenclosed clipped directly to a surface or on cable tray |                    |
| <b>Single Core</b> | (Sq. mm)                 | (Amp.)                                 | (Amp.)  | in [₹]             |
| CRLS01-0005A-AAA   | 0.5                      | 4                                      | 4.5   |                    |
| CRLS01-0008A-AAA   | 0.75                     | 7                                      | 8   |                    |
| CRLS01-0010A-AAA   | 1                        | 11                                     | 12  |                    |
| CRLS01-0015A-AAA   | 1.5                      | 13                                     | 16  |                    |
| CRLS01-0025A-AAA   | 2.5                      | 18                                     | 22  |                    |
| CRLS01-0040A-AAA   | 4                        | 24                                     | 29  |                    |
| CRLS01-0060A-AAA   | 6                        | 31                                     | 37  |                    |
| CRLS01-0100A-AAA   | 10                       | 42                                     | 51  |                    |
| CRLS01-0160A-AAA   | 16                       | 57                                     | 68  |                    |
| CRLS01-0250A-AAA   | 25                       | 71                                     | 86  |                    |
| CRLS01-0350A-AAA   | 35                       | 91                                     | 100   |                    |
| CRLS01-0500A-AAA   | 50                       | 120                                    | 145   |                    |

Note: Standard packing of 100m, 90m & 180m available. For prices of 90m & 180m, please contact nearest sales office.



## Multi Core PVC Flexible Cables

| Cat. No.<br>2 Core | Cat. No.<br>3 Core | Cat. No.<br>4 Core | Conductor area<br>(Normal) | Current Rating<br>(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                       |
| CR02-0160A-AAA     | CR03-0160A-AAA     | CR04-0160A-AAA     | 16                         | 62                       |
| CR02-0250A-AAA     | CR03-0250A-AAA     | CR04-0250A-AAA     | 25                         | 80                       |
| CR02-0350A-AAA     | CR03-0350A-AAA     | CR04-0350A-AAA     | 35                         | 102                      |
| CR02-0500A-AAA     | CR03-0500A-AAA     | CR04-0500A-AAA     | 50                         | 138                      |

| Cat. No.<br>5 Core | Cat. No.<br>6 Core | Cat. No.<br>7 Core | Conductor area<br>(Normal) | Current Rating<br>(Amps) |
|--------------------|--------------------|--------------------|----------------------------|--------------------------|
| CR05-0005A-AAA     | CR06-0005A-AAA     | CR07-0005A-AAA     | 0.5                        | 4                        |
| CR05-0008A-AAA     | CR06-0008A-AAA     | CR07-0008A-AAA     | 0.75                       | 7                        |
| CR05-0010A-AAA     | CR06-0010A-AAA     | CR07-0010A-AAA     | 1                          | 12                       |
| CR05-0015A-AAA     | CR06-0015A-AAA     | CR07-0015A-AAA     | 1.5                        | 15                       |
| CR05-0025A-AAA     | CR06-0025A-AAA     | CR07-0025A-AAA     | 2.5                        | 20                       |
| CR05-0040A-AAA     | CR06-0040A-AAA     | CR07-0040A-AAA     | 4                          | 27                       |
| CR05-0060A-AAA     |                    |                    | 6                          | 35                       |

| Cat. No.<br>8 Core | Cat. No.<br>10 Core | Cat. No.<br>12 Core | Conductor area<br>(Normal) | Current Rating<br>(Amps) |
|--------------------|---------------------|---------------------|----------------------------|--------------------------|
| CR08-0005A-AAA     | CR10-0005A-AAA      | CR12-0005A-AAA      | 0.5                        | 4                        |
| CR08-0008A-AAA     | CR10-0008A-AAA      | CR12-0008A-AAA      | 0.75                       | 7                        |
| CR08-0010A-AAA     | CR10-0010A-AAA      | CR12-0010A-AAA      | 1                          | 12                       |
| CR08-0015A-AAA     | CR10-0015A-AAA      | CR12-0015A-AAA      | 1.5                        | 15                       |
| CR08-0025A-AAA     | CR10-0025A-AAA      | CR12-0025A-AAA      | 2.5                        | 20                       |
| CR08-0040A-AAA     | CR10-0040A-AAA      | CR12-0040A-AAA      | 4                          | 27                       |

| Cat. No.<br>14 Core | Cat. No.<br>16 Core | Cat. No.<br>18 Core | Conductor area<br>(Normal) | Current Rating<br>(Amps) |
|---------------------|---------------------|---------------------|----------------------------|--------------------------|
| CR14-0005A-AAA      | CR16-0005A-AAA      | CR18-0005A-AAA      | 0.5                        | 4                        |
| CR14-0008A-AAA      | CR16-0008A-AAA      | CR18-0008A-AAA      | 0.75                       | 7                        |
| CR14-0010A-AAA      | CR16-0010A-AAA      | CR18-0010A-AAA      | 1                          | 12                       |
| CR14-0015A-AAA      | CR16-0015A-AAA      | CR18-0015A-AAA      | 1.5                        | 15                       |
| CR14-0025A-AAA      | CR16-0025A-AAA      | CR18-0025A-AAA      | 2.5                        | 20                       |
| CR14-0040A-AAA      | CR16-0040A-AAA      | CR18-0040A-AAA      | 4                          | 27                       |

| Cat. No.<br>19 Core | Cat. No.<br>24 Core | Cat. No.<br>25 Core | Conductor area<br>(Normal) | Current Rating<br>(Amps) |
|---------------------|---------------------|---------------------|----------------------------|--------------------------|
| CR19-0005A-AAA      | CR24-0005A-AAA      | CR25-0005A-AAA      | 0.5                        | 4                        |
| CR19-0008A-AAA      | CR24-0008A-AAA      | CR25-0008A-AAA      | 0.75                       | 7                        |
| CR19-0010A-AAA      | CR24-0010A-AAA      | CR25-0010A-AAA      | 1                          | 12                       |
| CR19-0015A-AAA      | CR24-0015A-AAA      | CR25-0015A-AAA      | 1.5                        | 15                       |
| CR19-0025A-AAA      | CR24-0025A-AAA      | CR25-0025A-AAA      | 2.5                        | 20                       |
| CR19-0040A-AAA      | CR24-0040A-AAA      | CR25-0040A-AAA      | 4                          | 27                       |

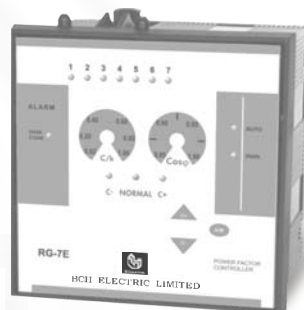
| Cat. No.<br>30 Core | Cat. No.<br>36 Core | Conductor area<br>(Normal) | Current Rating<br>(Amps) |
|---------------------|---------------------|----------------------------|--------------------------|
| CR30-0005A-AAA      | CR36-0005A-AAA      | 0.5                        | 4                        |
| CR30-0008A-AAA      | CR36-0008A-AAA      | 0.75                       | 7                        |
| CR30-0010A-AAA      | CR36-0010A-AAA      | 1                          | 12                       |
| CR30-0015A-AAA      | CR36-0015A-AAA      | 1.5                        | 15                       |
| CR30-0025A-AAA      | CR36-0025A-AAA      | 2.5                        | 20                       |
| CR30-0040A-AAA      | CR36-0040A-AAA      | 4                          | 27                       |

The conductor construction given above is indicative only and will be such that all requirements of strand diameter and conductor resistance as per IS 694:1990 and IS 8130:1984 are met.

Sizes 0.5 to 4 Sq. mm from 2 to 5 cores with ISI mark, rest all generally conforming to the IS. Standard packing available in 100 meter coils, longer lengths on drums (500m to 1000m)

# 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**
- **APFC Panels**







## CAN TYPE Heavy Duty MA/C/CE/TER Series

| KVAR rating                       | Cat. No.           | MRP [₹] |
|-----------------------------------|--------------------|---------|
| 440V, 3-Ph., 50HZ-With Connectors |                    |         |
| 2.5                               | MACCETER-2.5-440V  | 1450    |
| 5.0                               | MACCETER-5-440V    | 1500    |
| 7.5                               | MACCETER7-5-440V   | 2150    |
| 10.0                              | MACCETER-10-0-440V | 3045    |
| 12.5                              | MACCETER-12-5-440V | 3125    |
| 15                                | MACCETER-15- 440V  | 4450    |
| 20                                | MACCETER-20-440V   | 4750    |
| 25                                | MACCETER-25-440V   | 6750    |
| 30                                | MACCETER-30-440V   | 6750    |

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

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

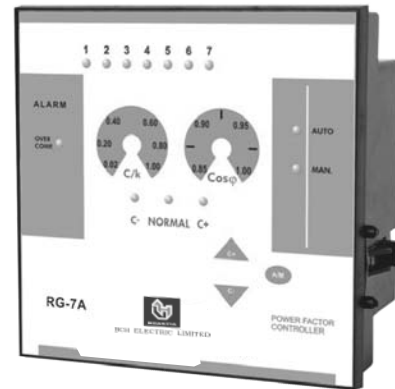
| KVAR Rating  | Cat. No.            | MRP [₹] |
|--|---------------------|---------|
| 440V, 3-Ph., 50HZ.<br>Specially designed for Harmonic Filter Application |                     |         |
| 2.5  | MACCERTF-2.5- 440V  | 2210    |
| 5.0  | MACCERTF-5-440V     | 2245    |
| 7.5  | MACCERTF-7.5- 440V  | 3284    |
| 10.0   | MACCERTF-10- 440V   | 4350    |
| 12.5   | MACCERTF-12.5- 440V | 5430    |
| 15   | MACCERTF-15- 440V   | 6525    |
| 20   | MACCERTF-20- 440V   | 8710    |
| 25   | MACCERTF-25- 440V   | 10850   |
| 30   | MACCERTF-30- 440V   | 13005   |

# APFC Relays & Reactors

## Intelligent Power Factor Controllers (IPFC)

| Dimensions (mm) | Cat No.    | MRP [₹] |
|-----------------|------------|---------|
| 144 x 144       | RG3-12CS** | 33500   |
| 144 x 144       | RG3-15C**  | 27975   |
| 144 x 144       | RG3-15CS** | 33140   |

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



**Now  
15 step**

- 3-Phase / 3CTs
- Connecting Single-Phase & 3-Phase Capacitors
- Compensation of Each Phase
- Measures : A, Cos-φ, Total W, Total VAR, Total VA, Total KWH, Total KVArh
- 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)

- 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 [₹] |
|-----------------|----------------|---------|
| 6 Steps         |                |         |
| 144 x 144       | RG-6T* - ■     | 13675   |
| 96 x 96         | RG-6T* (96x96) | 12380   |
| 8 Steps         |                |         |
| 144 x 144       | RG-8T* - ■     | 14320   |
| 144 x 144       | RG3-8T** - ■   | 15920   |
| 12 Steps        |                |         |
| 144 x 144       | RG-12T* - ■    | 17185   |
| 144 x 144       | RG3-12T** - ■  | 19770   |

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

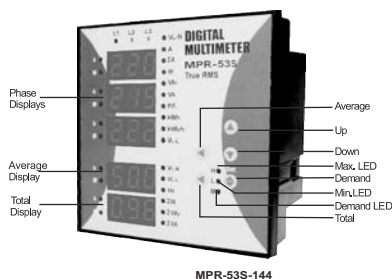


# Digital Network Analysers ..... BCH

| Sl. No.  | Description  | Cat. No     | MRP [₹]    |
|--|--|-------------|------------|
| <b>MPR-53 Series</b>   |  |             |            |
| 1  | With Pulse Output, LED Display (96x96 mm)  | MPR-53-96   | 14705      |
| 2  | With Pulse Output, LED Display (144x144 mm)  | MPR-53-144  | On request |
| 3  | With Pulse Output, LED Display (DIN)   | MPR-53-DIN  | 15300      |
| <b>MPR-53S Series</b>  |  |             |            |
| 4  | With RS-485 PC Communication (MODBUS-RTU Protocol) and Pulse Output, LED Display (96x96 mm)  | MPR-53S-96  | 19975      |
| 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 | 20765      |
| <b>MPR-60S Series</b>  |  |             |            |
| 7  | With Total Harmonic Measurement, LCD Display (THD V%, THD I%) (96x96 mm)   | MPR-60S     | 27985      |
| 8  | With Total Harmonic Measurement, LCD Display + Digital Input and Digital Output (THD V%, THDI%) (96x96mm)  | MPR-60S-10  | On request |
| <b>MPR-63 Series</b>   |  |             |            |
| 9  | With Harmonic Measurement, LCD Display (THD V%, THD I%, up to 31th harmonic for Current & Voltage separately) (96x96mm)                                    | MPR-63      | 35020      |
| 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 |
| <b>MPR-SW - SOFTWARE FOR MONITORING &amp; SAVING PARAMETERS FOR MPR SERIES</b> |  |             |            |
| 11   | For 1 MPR Series   | MPR-SW-1    | On request |
| 12   | For 5 MPR Series   | MPR-SW-5    | On request |
| 13   | For 10 MPR Series  | MPR-SW-10   | On request |
| 14   | For 15 MPR Series  | MPR-SW-15   | On request |
| 15   | For 20 MPR Series  | MPR-SW-20   | On request |
| <b>ACCESSORIES FOR MPR SERIES</b>  |  |             |            |
| 16   | RS232 TO RS485 Converter with Serial Cable & Power Adaptor   | RS-C1       | On request |
| 17   | RS-485 / USB Converter for communicating PC with USB Cable   | RS-USB2     | On request |
| 18   | Amplifies the Communication Data Signal* 1   | RPT-1       | On request |

Note : \*RPT-1 must be used for each 20 devices.  
For any other variants please contact sales office

**MPR 53 S-144 (144x144 mm)**



**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)



**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 (kVAh)
- Reactive Energy - Inductive (kVAh)

**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 $\phi$
- 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 (kVAh)
- Reactive Energy - Inductive (kVAh)
- 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 TMS<sup>2</sup> 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.**

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

|               | KVA <sub>r</sub> | Output Steps | Cat No. Version1/2 | Incomer MCCB | Switching Sequence |     |     |    |    |    |    |    |    |    |    |    | Dimension      |
|---------------|------------------|--------------|--------------------|--------------|--------------------|-----|-----|----|----|----|----|----|----|----|----|----|----------------|
|               |                  |              |                    |              | 1                  | 2   | 3   | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | W x H x D (mm) |
| Version 1 & 2 | 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

|               | KVA <sub>r</sub> | Output Steps | Cat No. Version3/4 | Incomer MCCB | Switching Sequence |     |     |    |    |    |    |    |    |    |    |    | Dimension      |
|---------------|------------------|--------------|--------------------|--------------|--------------------|-----|-----|----|----|----|----|----|----|----|----|----|----------------|
|               |                  |              |                    |              | 1                  | 2   | 3   | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | W x H x D (mm) |
| Version 3 & 4 | 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

|           | KVA <sub>r</sub> | 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)     |
| Version 5 | 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

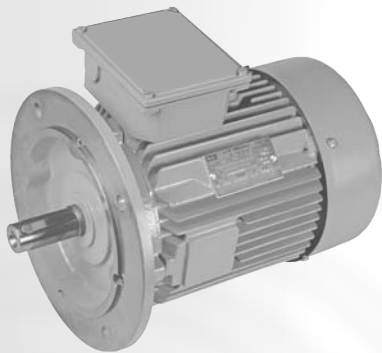
# Motors

**ENDURA**  
Low Voltage AC TEFC Squirrel  
Cage Induction Motors

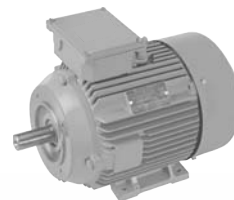
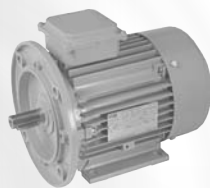
**EFF1  
EFF2**

**50°C**  
ambient temperature

**Class F**

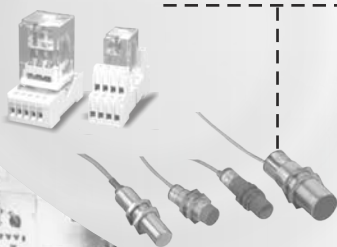
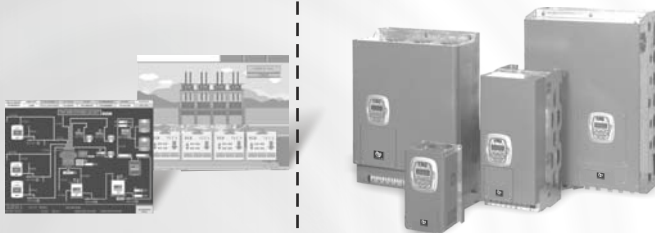
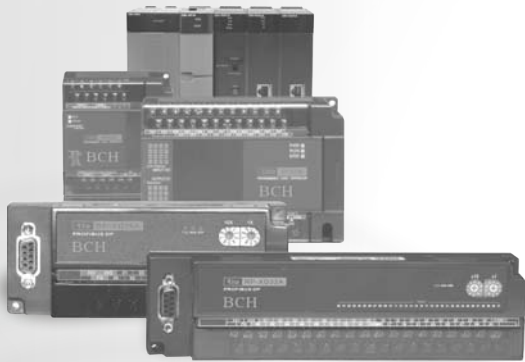


- **0.12 HP to 425 HP**
- **2 to 8 Poles**
- **Vector Plus with forced cooling**
- **Upto 40 intermediate standard ratings**
- **High efficiency, consistent - life long**
- **Low loss for entire life**
- **Inverter duty motor**
- **No deration upto 50° C**
- **Dual coat winding wire as standard feature**
- **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
- e-prox Sensors
- Plug-in Relays
- Electronic Timers





## 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)





## 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

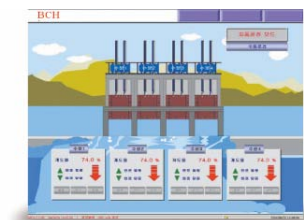
- 12.1" & 19" TFT display
- High color resolution TFT display
- Panel mountable structure
- All in one embedded board
- Connectivity with 4 serial ports and 1 Ethernet port



### **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



## CP/XP Series Programmable Logic Controller

| Block                    | Model                    | Description  | MRP [₹]  |
|--------------------------|--------------------------|--|--|
| 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,TB,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 portocol / 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 [₹] |
|---------------|----------------|-------|-----------|----|-------------------------------|---|--|---------|
| CM2-BP32MDTA* | AC<br>100-240V | 16    | DC<br>24V | 16 | TR SINK<br>TR SOURCE<br>RELAY | * Indicates<br>R : RS232C<br>S : RS422/485<br>E : Ethernet (10M)<br>U : RS422/485 2Ch<br>T : RS232 1 Ch | For prices please contact our nearest sales office |         |
| CM2-BP32MDCA* |                |       |           |    |                               |   |  |         |
| CM2-BP32MDRA* |                |       |           |    |                               |   |  |         |
| CM2-BP32MDTD* | DC 24V         | 8     | DC<br>24V | 7  | TR SINK<br>TR SOURCE<br>RELAY |   |  |         |
| CM2-BP32MDCD* |                |       |           |    |                               |   |  |         |
| CM2-BP32MDRD* |                |       |           |    |                               |   |  |         |
| CM2-BP16MDTA* | AC<br>100-240V | 8     | DC<br>24V | 7  | TR SINK<br>TR SOURCE<br>RELAY | * Indicates<br>R : RS232C<br>S : RS422/485  |  |         |
| CM2-BP16MDCA* |                |       |           |    |                               |   |  |         |
| CM2-BP16MDRA* |                |       |           |    |                               |   |  |         |
| CM2-BP16MDTD* | DC 24V         | 8     | DC<br>24V | 7  | TR SINK<br>TR SOURCE<br>RELAY |   |  |         |
| CM2-BP16MDCD* |                |       |           |    |                               |   |  |         |
| CM2-BP16MDRD* |                |       |           |    |                               |   |  |         |
| CM2-BP16EDT   | 16 CH          |       |           |    |                               |   |  |         |
| CM2-BP16EDC   | 16 CH          |       |           |    |                               |   |  |         |
| CM2-BP16EDR   | 16 CH          |       |           |    |                               |   |  |         |

\* Please refer catalogue for details

## Human Machine Interface

### Xpanel

| Model       | Specification  | MRP [₹]  |
|-------------|--|--|
| CM-XT04CD-D | 4.3", 480 x 272 Resistive, TFT Colour display<br>32MB Flash Memory, RS232/Ethernet/USB host port                           | For prices<br>please contact<br>our<br>nearest<br>sales office |
| CM-XT07CB-A | 7", 65536 Color, 800 x 480 Resistive, TFT Color display, 32MB<br>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<br>Flash memory, RS232/Ethernet/USB host port |  |
| CM-XT12CB-A | 12.1", 65536 Color, 800 x 600 Resistive, TFT Color display, 64MB SDRAM, 32MB<br>Flash memory, RS232/Ethernet/USB host port |  |

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

\* D - DC Power Input - 24V DC

## SCADA Software

### Development System

| Model        | No. of Tags   | Description                              | MRP [₹]  |
|--------------|---------------|--|--|
| CM01-0075/DS | 75 Tags       | Development + Runtime + Keylock + Manual | For prices<br>please contact<br>our<br>nearest<br>sales office |
| 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       | MRP [₹]  |
|--------------|---------------|-------------------|--|
| CM01-0075/RS | 75 Tags       | Runtime + Keylock | For prices<br>please contact<br>our<br>nearest<br>sales office |
| 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                                    | MRP [₹]  |
|--------------|----------------|--|--|
| CM01-0002/WS | 02 User        | 2 concurrent users (Including Full/DS)         | For prices<br>please contact<br>our<br>nearest<br>sales office |
| 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 Relay ..... BCH

## 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 [₹] |
|---|--------------|---------|
| 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     | 6900    |
| 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    | 11750   |
| 12~24VDC 12 DC IN (A) /8 R Out Expansion Unit | SR-20ERD     | 6900    |
| 12~24VDC 14 DC IN (A) /8 TR PNP OUT           | SR-22 MGDC   | 13030   |
| 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     | 6900    |
| 100~240VAC type receiver module               | SR-RCA       | 10300   |
| 12~24VDC type receiver module                 | SR-RCD       | 10300   |
| DC3V Transmitter module                       | SR-TC        | 4100    |
| 100~240VAC AC voice module                    | SR-VPA       | 9300    |
| 12~24 VDC DC voice module                     | SR-VPD       | 9300    |
| Human Machine Interface (LCD panel)           | SR-HMI-B     | 2050    |
| Progammig cable - RS232-9 PIN D               | SR-CP        | 1675    |
| Progammig cable - USB                         | SR-DUSB      | 2050    |
| AC Type remote Connecting bridge              | SR-ECBA      | 750     |
| DC Type remote Connecting bridge              | SR-ECBD      | 750     |
| Remote mounting rack for LCD panel            | SR-EHC       | 930     |
| Programming Panel                             | SR-WRT       | 2050    |
| Recording cable                               | SR-AUD       | 185     |
| Long connecting antenna of SR-RCA/SR-RCD      | SR-EANT      | 2975    |



## SINUS N Drive



| Rating (Kw) | Drive Series | Product Code       | Supply Details  | Remark   | Current (A) | MRP [₹] |
|-------------|--------------|--------------------|---|----------|-------------|---------|
| 0.37        | SINUS N      | SINUS N 2S0001XBK2 | Input - 1 phase<br>200 - 240V AC,<br>Output - 3 phase,<br>240V AC | With EMC | 2.5         | 13900   |
| 0.37        | SINUS N      | SINUS N 2S0001XIK2 |   | W/o EMC  | 2.5         | 13000   |
| 0.75 - 1.1  | SINUS N      | SINUS N 2S0002XBK2 |   | With EMC | 5           | 15750   |
| 0.75 - 1.1  | SINUS N      | SINUS N 2S0002XIK2 |   | W/o EMC  | 5           | 14900   |
| 1.5 - 1.8   | SINUS N      | SINUS N 2S0003XBK2 |   | With EMC | 8           | 19400   |
| 1.5 - 1.8   | SINUS N      | SINUS N 2S0003XIK2 |   | W/o EMC  | 8           | 17750   |
| 2.2 - 3     | SINUS N      | SINUS N 2S0005XBK2 |   | With EMC | 12          | 23500   |
| 2.2 - 3     | SINUS N      | SINUS N 2S0005XIK2 |   | W/o EMC  | 12          | 21800   |

## 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 [₹] |
|-------------|--------------|---------------------|---|----------|-------------|---------|
| 0.37 - 0.55 | SINUS M      | SINUS M 4T0001BA2K2 | Input - 3 phase<br>415V AC,<br>Output - 3 phase,<br>415V AC | With EMC | 1.25        | 21300   |
| 0.75 - 0.9  | SINUS M      | SINUS M 4T0002BA2K2 |   | With EMC | 2.50        | 23200   |
| 1.5         | SINUS M      | SINUS M 4T0003BA2K2 |   | With EMC | 4.00        | 26000   |
| 2.2         | SINUS M      | SINUS M 4T0005BA2K2 |   | With EMC | 6.00        | 28000   |
| 3.4         | SINUS M      | SINUS M 4T0007BA2K2 |   | With EMC | 9.00        | 34300   |
| 5.5         | SINUS M      | SINUS M 4T0011BA2K2 |   | With EMC | 12.00       | 44200   |
| 7.5         | SINUS M      | SINUS M 4T0014BA2K2 |   | With EMC | 16.00       | 52300   |
| 11          | SINUS M      | SINUS M 4T0017BA2K2 |   | With EMC | 24.00       | 92000   |
| 15          | SINUS M      | SINUS M 4T0020BA2K2 |   | With EMC | 30.00       | 105610  |
| 18.5        | SINUS M      | SINUS M 4T0025BA2K2 |   | With EMC | 39.00       | 134255  |
| 22          | SINUS M      | SINUS M 4T0030BA2K2 |   | With EMC | 45.00       | 157900  |

\*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.



## ASAB Series 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<br>Model<br>200-525V | Size      | Start<br>per<br>Hour | Bypassed ratings In-line connection     |              |              |                      | Start<br>per<br>Hour                         | Bypassed ratings Inside Delta connection |              |              |                      |
|------------------------------|-----------|----------------------|---|--------------|--------------|----------------------|--|--|--------------|--------------|----------------------|
|                              |           |                      | 300%, 10s<br>Light Dty                  | 350%,<br>15s | 400%,<br>20s | 450%, 30s<br>Hvy Dty |  | 300%, 10s<br>Light Dty                   | 350%,<br>15s | 400%,<br>20s | 450%, 30s<br>Hvy Dty |
|                              |           |                      | N°                                      | Amps         | Amps         | Amps                 |  | Amps                                     | N°           | 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                   |
| ASAB-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 |              |              |                      | Non Bypassed ratings Inside delta 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

- 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

| BIL Product Reference       | Motor Rating Kw | MRP [₹] | Remark  |
|-----------------------------|-----------------|---------|---|
| <b>200 - 440 VAC, IP:20</b> |                 |         |   |
| ASAC-0/007/4/1              | 7.5             | 36500   | Without Motor Protection & with Inbuilt Bypass contactor. |
| ASAC-0/015/4/1              | 15              | 37000   |   |
| ASAC-0/018/4/1              | 18.5            | 37500   |   |
| ASAC-0/022/4/1              | 22              | 39500   |   |
| ASAC-0/030/4/1              | 30              | 43500   |   |
| ASAC-0/037/4/1              | 37              | 52000   |   |
| ASAC-0/045/4/1              | 45              | 64000   |   |
| ASAC-0/055/4/1              | 55              | 65500   |   |
| ASAC-0/075/4/1              | 75              | 99500   |   |
| ASAC-0/090/4/1              | 90              | 109000  |   |
| ASAC-0/110/4/1              | 110             | 117500  |   |
| <b>200 - 440 VAC, IP:20</b> |                 |         |   |
| ASAC-1/007/4/1              | 7.5             | 51000   | With Motor Protections & Inbuilt Bypass contactor.        |
| ASAC-1/015/4/1              | 15              | 57000   |   |
| ASAC-1/018/4/1              | 18.5            | 58500   |   |
| ASAC-1/022/4/1              | 22              | 62000   |   |
| ASAC-1/030/4/1              | 30              | 69000   |   |
| ASAC-1/037/4/1              | 37              | 77000   |   |
| ASAC-1/045/4/1              | 45              | 94000   |   |
| ASAC-1/055/4/1              | 55              | 99000   |   |
| ASAC-1/075/4/1              | 75              | 118000  |   |
| ASAC-1/090/4/1              | 90              | 155000  |   |
| ASAC-1/110/4/1              | 110             | 168500  |   |



## 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.**

## @PROX Range

### Standard Version of Inductive Proximity Switches



- 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

| Cat. No.   | Dia (mm) | Nominal Sn Distance (mm) | Output | Max. Load (mA) | MRP [₹] | Lot Size |
|--|----------|--------------------------|--------|----------------|---------|----------|
| Flush Version Nominal Voltage 12-30V DC 3 Wire Output LED Indication<br>Integrated cable 3C/2M     |          |                          |        |                |         |          |
| DINE8SP10  | 8        | 1.5                      | PNP-NO | 100            | 940     | 10       |
| DINE8SN10  | 8        | 1.5                      | NPN-NO | 100            | 940     |          |
| DINE12SP10   | 12       | 2                        | PNP-NO | 200            | 745     |          |
| DINE12SN10   | 12       | 2                        | NPN-NO | 200            | 745     |          |
| DINE18SP10   | 18       | 5                        | PNP-NO | 200            | 790     |          |
| DINE18SN10   | 18       | 5                        | NPN-NO | 200            | 790     |          |
| DINE30SP10   | 30       | 10                       | PNP-NO | 400            | 970     |          |
| DINE30SN10   | 30       | 10                       | NPN-NO | 400            | 970     |          |
| Non Flush Version Nominal Voltage 12-30V DC 3 Wire Output LED Indication<br>Integrated cable 3C/2M |          |                          |        |                |         |          |
| DINE8NP10  | 8        | 2                        | PNP-NO | 100            | 940     | 10       |
| DINE8NN10  | 8        | 2                        | NPN-NO | 100            | 925     |          |
| DINE12NP10   | 12       | 4                        | PNP-NO | 200            | 745     |          |
| DINE12NN10   | 12       | 4                        | NPN-NO | 200            | 745     |          |
| DINE18NP10   | 18       | 8                        | PNP-NO | 200            | 790     |          |
| DINE18NN10   | 18       | 8                        | NPN-NO | 200            | 790     |          |
| DINE30NP10   | 30       | 15                       | PNP-NO | 400            | 970     |          |
| DINE30NN10   | 30       | 15                       | NPN-NO | 400            | 970     |          |
| Flush Version Nominal Voltage 240V AC* 2 Wire Output LED Indication<br>Integrated cable 3C/2M      |          |                          |        |                |         |          |
| DINE12SA10   | 12       | 2                        | NO     | 200            | 925     | 10       |
| DINE12SA01   | 12       | 2                        | NC     | 200            | 925     |          |
| DINE18SA10   | 18       | 5                        | NO     | 400            | 930     |          |
| DINE18SA01   | 18       | 5                        | NC     | 400            | 930     |          |
| DINE30SA10   | 30       | 10                       | NO     | 400            | 1100    |          |
| DINE30SA01   | 30       | 10                       | NC     | 400            | 1100    |          |
| Non Flush Version Nominal Voltage 240V AC* 2 Wire Output LED Indication<br>Integrated cable 3C/2M  |          |                          |        |                |         |          |
| DINE12NA10   | 12       | 4                        | NO     | 200            | 925     | 10       |
| DINE12NA01   | 12       | 4                        | NC     | 200            | 925     |          |
| DINE18NA10   | 18       | 8                        | NO     | 400            | 930     |          |
| DINE18NA01   | 18       | 8                        | NC     | 400            | 930     |          |
| DINE30NA10   | 30       | 15                       | NO     | 400            | 1100    |          |
| DINE30NA01   | 30       | 15                       | NC     | 400            | 1100    |          |

\*110V AC input voltage is also available

## @PROX Range

### 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 [₹] | Lot Size |
|---|----------|--------------------------|--------|----------------|---------|----------|
| Flush Version 12-30V DC 3 Wire Output LED Indication Integrated 3C/2M     |          |                          |        |                |         |          |
| DCAE18SN10  | 18       | 1 to 5                   | NPN-NO | 400            | 1930    | 10       |
| DCAE18SP10  | 18       | 1 to 5                   | PNP-NO | 400            | 1930    |          |
| DCAE30SN10  | 30       | 1 to 10                  | NPN-NO | 400            | 2220    |          |
| DCAE30SP10  | 30       | 1 to 10                  | PNP-NO | 400            | 2220    |          |
| Non Flush Version 12-30V DC 3 Wire Output LED Indication Integrated 3C/2M |          |                          |        |                |         |          |
| DCAE18NN10  | 18       | 2 to 10                  | NPN-NO | 400            | 1930    | 10       |
| DCAE18NP10  | 18       | 2 to 10                  | PNP-NO | 400            | 1930    |          |
| DCAE30NN10  | 30       | 3 to 15                  | NPN-NO | 400            | 2220    |          |
| DCAE30NP10  | 30       | 3 to 15                  | PNP-NO | 400            | 2220    |          |

### 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 [₹] |
|---|----------|--------------------------|-----------|----------------|---------|
| 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            | 2950    |
| DPHE18D2P11   | 18       | 200                      | PNP-NO+NC | 200            | 2950    |
| 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            | 2950    |
| DPHE18RRP11   | 18       | 1000                     | PNP-NO+NC | 200            | 2950    |
| 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            | 3550    |
| DPHE18TBRN11  | 18       | 5000                     | NPN-NO+NC | 200            | 3550    |

#### 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 [₹] | 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       | 975     | 10       |
| DINE8SN10K   | 8  | 1.5                      | NPN-NO    | M8 Connector       | 975     |          |
| DINE12SP10K  | 12   | 2                        | PNP-NO    | M12 Connector      | 965     |          |
| DINE12SN10K  | 12   | 2                        | NPN-NO    | M12 Connector      | 965     |          |
| DINE18SP10K  | 18   | 5                        | PNP-NO    | M12 Connector      | 965     |          |
| DINE18SN10K  | 18   | 5                        | NPN-NO    | M12 Connector      | 965     |          |
| DINE30SP10K  | 30   | 10                       | PNP-NO    | M12 Connector      | 1085    |          |
| DINE30SN10K  | 30   | 10                       | NPN-NO    | M12 Connector      | 1085    |          |
| Non Flush Version Nominal Voltage 12-30V DC 3 Wire Output LED Indication                                       |  |                          |           |                    |         |          |
| DINE8NP10K   | 8  | 2                        | PNP-NO    | M8 Connector       | 975     | 10       |
| DINE8NN10K   | 8  | 2                        | NPN-NO    | M8 Connector       | 975     |          |
| DINE12NP10K  | 12   | 4                        | PNP-NO    | M12 Connector      | 975     |          |
| DINE12NN10K  | 12   | 4                        | NPN-NO    | M12 Connector      | 995     |          |
| DINE18NP10K  | 18   | 8                        | PNP-NO    | M12 Connector      | 965     |          |
| DINE18NN10K  | 18   | 8                        | NPN-NO    | M12 Connector      | 975     |          |
| DINE30NP10K  | 30   | 15                       | PNP-NO    | M12 Connector      | 1065    |          |
| DINE30NN10K  | 30   | 15                       | NPN-NO    | M12 Connector      | 1100    |          |
| Linear Output Inductive Proximity Sensor - Nominal Voltage 24V DC, 2m Integrated Cable                         |  |                          |           |                    |         |          |
| DINE18LIN  | 18   | 5                        | 0 - 10V   | 2 m long PVC Cable | 1665    | 10       |
| DINE18LINMA  | 18   | 5                        | 4 - 20 mA |                    | 1665    |          |
| Female Connectors  |  |                          |           |                    |         |          |
| DM8K3  | M8 3-Wire straight connector w/o LED & 2 m cable   |                          |           |                    | 740     | 10       |
| DM8K390LE  | M8 3-Wire "L" type connector with LED & 2 m cable  |                          |           |                    | 750     |          |
| DM12K4   | M12 4-Wire straight connector w/o LED & 2 m cable  |                          |           |                    | 500     |          |
| DM12K490   | M12 4-Wire "L" type connector w/o LED & 2 m cable  |                          |           |                    | 725     |          |
| DM12K490LE   | M12 4-Wire "L" type connector with LED & 2 m cable |                          |           |                    | 775     |          |

## Standard Version DC 2 Wire Proximity Switches

| Cat. No.  | Dia (mm) | Nominal Sensing Distance (mm) | Output | Max. Load (mA) | MRP [₹] | 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            | 1150    | 10       |
| DINE12SD10  | 12       | 2                             | NO     | 200            | 775     |          |
| DINE18SD10  | 18       | 5                             | NO     | 400            | 820     |          |
| DINE30SD10  | 30       | 10                            | NO     | 400            | 1065    |          |
| 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            | 1150    | 10       |
| DINE12ND10  | 12       | 4                             | NO     | 200            | 785     |          |
| DINE18ND10  | 18       | 8                             | NO     | 400            | 820     |          |
| DINE30ND10  | 30       | 15                            | NO     | 400            | 1065    |          |

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 [₹] | 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            | 1190    | 10       |
| DINE8SN10S   | 8        | 1.5                           | NPN-NO | 200            | 1190    |          |
| DINE12SP10S  | 12       | 2                             | PNP-NO | 200            | 805     |          |
| DINE12SN10S  | 12       | 2                             | NPN-NO | 200            | 805     |          |
| DINE18SP10S  | 18       | 5                             | PNP-NO | 400            | 835     |          |
| DINE18SN10S  | 18       | 5                             | NPN-NO | 400            | 835     |          |
| 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            | 1190    | 10       |
| DINE8NN10S   | 8        | 2                             | NPN-NO | 200            | 1190    |          |
| DINE12NP10S  | 12       | 4                             | PNP-NO | 200            | 805     |          |
| DINE12NN10S  | 12       | 4                             | NPN-NO | 200            | 805     |          |
| DINE18NP10S  | 18       | 8                             | PNP-NO | 400            | 820     |          |
| DINE18NN10S  | 18       | 8                             | NPN-NO | 400            | 820     |          |

## Square / Rectangular Proximity Switch

| Cat. No.*   | Size (mm) | Nominal Sensing Distance (mm) | Output | Max. Load (mA) | MRP [₹] | 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            | 835     | 10       |
| DINE2020SN10P   | 20x20x38  | 5                             | NPN-NO | 200            | 835     |          |
| DINE5025SP10P   | 50x25x10  | 5                             | PNP-NO | 200            | 875     |          |
| DINE1717SN10P   | 17x17x30  | 5                             | NPN-NO | 200            | 835     |          |
| DINE2020SP10P   | 20x20x38  | 5                             | PNP-NO | 200            | 835     |          |
| DINE5025SN10P   | 50x25x10  | 5                             | NPN-NO | 200            | 875     |          |

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

| Cat. No.*  | Size (mm) | Nominal Sensing Distance (mm) | Output | Max. Load (mA) | MRP [₹] | 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            | 3210    | 10       |
| DINE30NA10HT **  | 30        | 6                             | NO     | 200            | 3195    |          |
| DINE18SA10HT **  | 18        | 2                             | NO     | 200            | 3050    |          |
| DINE18NA10HT **  | 18        | 3                             | NO     | 200            | 3050    |          |

\* For NC Output, Replace Suffix 10 by 01

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

## 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



## Socket & Clamp

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



Clamp

## Plug In Relays - Universal

| Cat. No.  | Coil Voltage | Contacts | MRP [₹] | Lot Size |
|---|--------------|----------|---------|----------|
| 8 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever                   |              |          |         |          |
| ARPU212D  | 12 V DC      | 2 C/O    | 460     | 10       |
| ARPU224D  | 24V DC       |          | 460     |          |
| ARPU248D  | 48V DC       |          | 460     |          |
| ARPU2110D   | 110V DC      |          | 450     |          |
| ARPU224A  | 24V AC       |          | 480     |          |
| ARPU248A  | 48V AC       |          | 550     |          |
| ARPU2110A   | 110V AC      |          | 475     |          |
| ARPU2230A   | 230V AC      |          | 500     |          |
| 8 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever  |              |          |         |          |
| ARPU212DLE  | 12 V DC      | 2 C/O    | 500     | 10       |
| ARPU224DLE  | 24V DC       |          | 480     |          |
| ARPU248DLE  | 48V DC       |          | 615     |          |
| ARPU2110DLE   | 110V DC      |          | 500     |          |
| ARPU224ALE  | 24V AC       |          | 500     |          |
| ARPU248ALE  | 48V AC       |          | 650     |          |
| ARPU2110ALE   | 110V AC      |          | 515     |          |
| ARPU2230ALE   | 230V AC      |          | 525     |          |
| 11 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever                  |              |          |         |          |
| ARPU312D  | 12 V DC      | 3 C/O    | 500     | 10       |
| ARPU324D  | 24V DC       |          | 500     |          |
| ARPU348D  | 48V DC       |          | 500     |          |
| ARPU3110D   | 110V DC      |          | 500     |          |
| ARPU324A  | 24V AC       |          | 525     |          |
| ARPU348A  | 48V AC       |          | 575     |          |
| ARPU3110A   | 110V AC      |          | 515     |          |
| ARPU3230A   | 230V AC      |          | 525     |          |
| 11 Pin, Contact rating = 10A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever |              |          |         |          |
| ARPU312DLE  | 12 V DC      | 3 C/O    | 525     | 10       |
| ARPU324DLE  | 24V DC       |          | 650     |          |
| ARPU348DLE  | 48V DC       |          | 525     |          |
| ARPU3110DLE   | 110V DC      |          | 525     |          |
| ARPU324ALE  | 24V AC       |          | 555     |          |
| ARPU348ALE  | 48V AC       |          | 575     |          |
| ARPU3110ALE   | 110V AC      |          | 550     |          |
| ARPU3230ALE   | 230V AC      |          | 590     |          |

## Sockets

| Cat. No.  | Type          | MRP [₹] | Lot Size |
|---|---------------|---------|----------|
| 10A, 250V AC, Screw Terminals, 35mm DIN Rail Mounting |               |         |          |
| ARSU11  | 11 Pin Socket | 255     | 10       |
| ARSU8   | 8 Pin Socket  | 245     |          |
| ARPUCL  | Holding Clamp | 30      |          |

Subject to availability

## Miniature Plug in Relays



- Type ARPM 2/4
- 12/6 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, 12A, 300V



## Plug in Relays - Miniature

| Cat. No.   | Coil Voltage | Contacts | MRP [₹] | Lot Size |
|--|--------------|----------|---------|----------|
| 14 Pin, Contact rating = 6A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever                  |              |          |         |          |
| ARPM412D   | 12 V DC      | 4 C/O    | 300     | 10       |
| ARPM424D   | 24V DC       |          | 275     |          |
| ARPM448D   | 48V DC       |          | 320     |          |
| ARPM4110D  | 110V DC      |          | 315     |          |
| ARPM424A   | 24V AC       |          | 315     |          |
| ARPM448A   | 48V AC       |          | 320     |          |
| ARPM4110A  | 110V AC      |          | 300     |          |
| ARPM4230A  | 230V AC      |          | 310     |          |
| 14 Pin, Contact rating = 6A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever |              |          |         |          |
| ARPM412DLE   | 12 V DC      | 4 C/O    | 325     | 10       |
| ARPM424DLE   | 24V DC       |          | 305     |          |
| ARPM448DLE   | 48V DC       |          | 350     |          |
| ARPM4110DLE  | 110V DC      |          | 350     |          |
| ARPM424ALE   | 24V AC       |          | 350     |          |
| ARPM448ALE   | 48V AC       |          | 350     |          |
| ARPM4110ALE  | 110V AC      |          | 330     |          |
| ARPM4230ALE  | 230V AC      |          | 345     |          |
| 8 Pin, Contact rating = 12A (Res.) at 24V DC/250V AC; Mechanical indicator with manual testing/latching lever                  |              |          |         |          |
| ARPM212D   | 12 V DC      | 2 C/O    | 290     | 10       |
| ARPM224D   | 24V DC       |          | 245     |          |
| ARPM248D   | 48V DC       |          | 345     |          |
| ARPM2110D  | 110V DC      |          | 335     |          |
| ARPM224A   | 24V AC       |          | 295     |          |
| ARPM248A   | 48V AC       |          | 345     |          |
| ARPM2110A  | 110V AC      |          | 265     |          |
| ARPM2230A  | 230V AC      |          | 295     |          |
| 8 Pin, Contact rating = 12A (Res.) at 24V DC/250V AC; LED Indication & Mechanical indicator with manual testing/latching lever |              |          |         |          |
| ARPM212DLE   | 12 V DC      | 2 C/O    | 315     | 10       |
| ARPM224DLE   | 24V DC       |          | 295     |          |
| ARPM248DLE   | 48V DC       |          | 345     |          |
| ARPM2110DLE  | 110V DC      |          | 335     |          |
| ARPM224ALE   | 24V AC       |          | 335     |          |
| ARPM248ALE   | 48V AC       |          | 355     |          |
| ARPM2110ALE  | 110V AC      |          | 315     |          |
| ARPM2230ALE  | 230V AC      |          | 330     |          |

## Sockets

| Cat. No.                                | Type          | MRP [₹] | Lot Size |
|---|---------------|---------|----------|
| Screw Terminals, 35mm DIN Rail Mounting |               |         |          |
| ARSM14                                  | 14 Pin Socket | 245     | 10       |
| ARSM8                                   | 8 Pin Socket  | 185     |          |
| ARPMCL                                  | Holding Clamp | 25      |          |

Subject to availability

## Electronic Timers



- 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

| Description  | Cat.No.   | MRP [₹] |
|--|-----------|---------|
| Timer<br>Encapsulated on delay Timer Type SAS-P (Solid State output)<br>Voltages : 240V AC, 110V AC, 48V AC/DC, 24V AC/DC<br>Time Range : 1 sec. or 0.1-10 Sec. or 1-100 Sec., or 3-300 Sec. | SST00= 0- | 890     |
| Encapsulated on delay timer type SAS-CB (Solid State output)<br>(Compressor/Heat pump)<br>Voltages : 240V AC, 110V AC, 48V AC/DC, 24V AC/DC<br>Time Range : 180 Sec. fixed                   | SST02= 00 | 890     |
| Chronos<br>Delay on make type BAR 0.1 Sec. - 10 Hrs.<br>240V AC; 24V AC/DC or 110V AC; 24V AC/DC or 12V DC   | SBT00= 00 | 1590    |
| Delay on break type BCR 0.1 Sec. - 10 Hrs.<br>240V AC; 24V AC/DC or 110V AC; 24V AC/DC or 12V DC   | SBT01= 00 | 1750    |
| Recycling type BDR 0.1 Sec. - 10 Hrs.<br>240V AC; 24V AC/DC or 110V AC; 24V AC/DC  | SBT02= 00 | 2405    |
| Multifunction type BLR 0.1 Sec. - 10 Hrs.<br>240V AC; 24V AC/DC or 110V AC; 24V AC/DC  | SBT03= 00 | 1790    |
| Star-Delta Timer Type DQR-0.2-20<br>Sec./1-100 Sec.; 415/240, 110V:AC  | SDT00= 0- | 1610    |

- 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<br>(Star Delta<br>Timer) | 20 Sec.  | 0    |
|                              | 40 Sec.  | 1    |
|                              | 100 Sec. | 2    |
| SAS                          | 1 Sec.   | 0    |
|                              | 10 Sec.  | 1    |
|                              | 100 Sec. | 2    |
|                              | 300 Sec. | 3    |

## 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 [₹] |
|-----------|-------------|----------|-----------|---------|
| IBT00101  | 0.6-6 Sec   | On Delay | 240V AC   | 870     |
| IBT00201  | 0.6-6 Sec   | On Delay | 110V AC   | 870     |
| IBT00301  | 0.6-6 Sec   | On Delay | 24V AC/DC | 870     |
| IBT00401  | 0.6-6 Sec   | On Delay | 12V DC    | 870     |
| IBT00102  | 3-30 Sec    | On Delay | 240V AC   | 870     |
| IBT00202  | 3-30 Sec    | On Delay | 110V AC   | 870     |
| IBT00302  | 3-30 Sec    | On Delay | 24V AC/DC | 870     |
| IBT00402  | 3-30 Sec    | On Delay | 12V DC    | 870     |
| IBT00103  | 6-60 Sec    | On Delay | 240V AC   | 870     |
| IBT00203  | 6-60 Sec    | On Delay | 110V AC   | 870     |
| IBT00303  | 6-60 Sec    | On Delay | 24 VAC/DC | 870     |
| IBT00403  | 6-60 Sec    | On Delay | 12V DC    | 870     |
| IBT00104  | 18-180 Sec  | On Delay | 240V AC   | 870     |
| IBT00204  | 18-180 Sec  | On Delay | 110V AC   | 870     |
| IBT 00304 | 18-180 Sec. | On Delay | 24 VAC/DC | 870     |
| IBT00404  | 18-180 Sec. | On Delay | 12V DC    | 870     |

### Universal Voltage, Multi Time, Multi Function - IBTMU

| Cat Ref. | Time Range    | Function                                   | Voltage       | MRP [₹] |
|----------|---------------|--|---------------|---------|
| IBT04500 | 0.1S - 10 Hr. | On Delay, Off Delay, Interval, Single Shot | 24-240V AC/DC | 1680    |

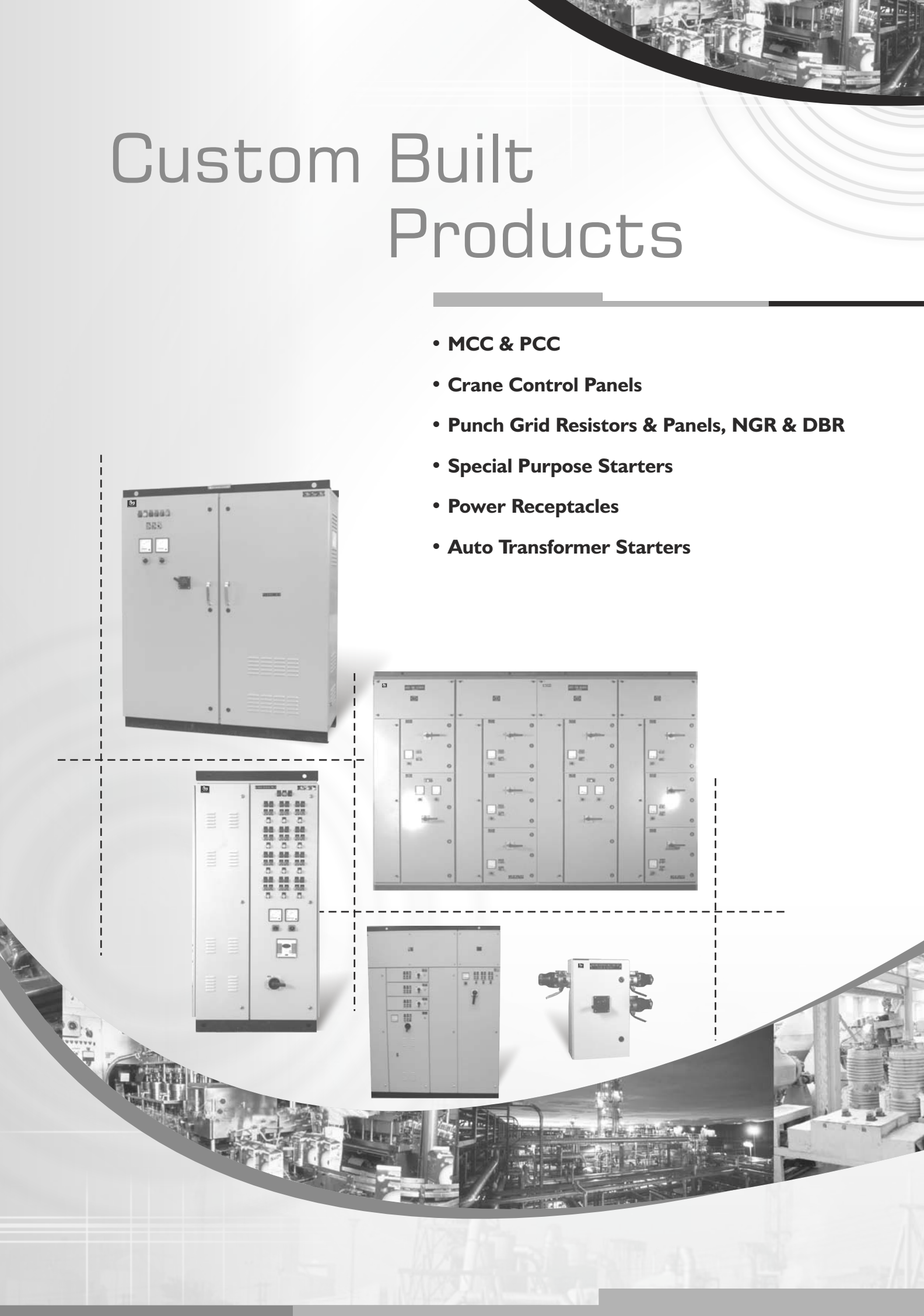
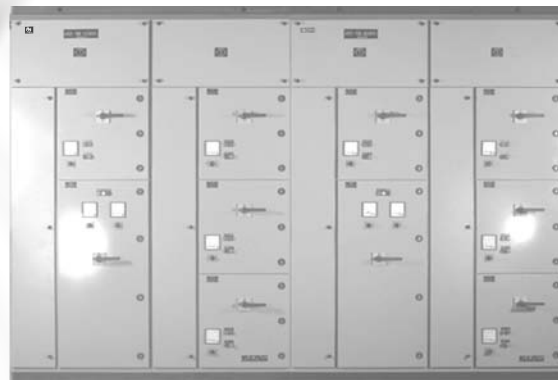


### Programmable Counter / Timer - IBC

| Voltage     | Description  | Cat No.  | MRP [₹] |
|-------------|--|----------|---------|
| 115/230 VAC | Counting Range:0-999999<br>Counter: Up,Down,Up/Down<br>Timer : A-On delay,B-Single shot<br>C-Off delay,H-Interval<br>D-Cycling timer<br>Chronometer: Up,Down | IBC00100 | 3990    |
| 12/24 VDC   | Counting Range:0-999999<br>Counter: Up,Down,Up/Down<br>Timer : A-On delay,B-Single shot<br>C-Off delay,H-Interval<br>D-Cycling time<br>Chronometer: Up, Down | IBC00200 | 3850    |

# 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.



## 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



## 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.

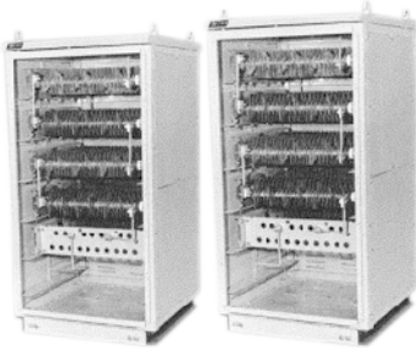
### Design Features

- Simplified reliable circuitary
- 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

### 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

## 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 Chromium 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

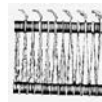
We also manufacture NGRs & DBRs

## Special Purpose Starters

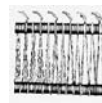
- Direct ON Line Starters upto 500 HP
- Star Delta Starters upto 650 HP
- Closed Transition Star Delta Starters upto 650 HP
- Automatic Stator Rotor Starting Panels upto 1000 HP
- DC starter upto 600A

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

| Type   | Resistance Per Bank | Continuous Rating | LP      |
|--------|---------------------|-------------------|---------|
|        | Ohms                | Amps              | MRP [₹] |
| WL10   | 0.1                 | 225               | 12255   |
| W12    | 0.125               | 200               | 10840   |
| WL16   | 0.16                | 185               | 12520   |
| WL20   | 0.2                 | 150               | 12790   |
| WL25   | 0.25                | 134               | 11285   |
| WL32   | 0.32                | 118               | 10000   |
| WL40   | 0.4                 | 113               | 11560   |
| WL50   | 0.5                 | 100               | 9760    |
| WL62   | 0.62                | 84                | 12610   |
| WL80   | 0.8                 | 75                | 11420   |
| WL100  | 1                   | 67                | 10620   |
| WL125  | 1.25                | 64                | 11820   |
| WL160  | 1.6                 | 57                | 10200   |
| WL200  | 2                   | 54                | 12040   |
| WL250  | 2.5                 | 48                | 10020   |
| WL320  | 3.2                 | 43                | 8770    |
| WL400  | 4                   | 40                | 12230   |
| WL500  | 5                   | 35                | 8870    |
| WL625  | 6.25                | 33                | 10135   |
| WL800  | 8                   | 29                | 9450    |
| WL1200 | 12                  | 24                | 10135   |
| WL1600 | 16                  | 20                | 9830    |



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

### 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<br>Cat reference | Loop in loop out version<br>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 +<br>separate<br>Neutral Link<br>+ 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 +<br>separate<br>Neutral Link +<br>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 +<br>separate<br>Neutral Link +<br>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 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<br>Auto Transformer<br>Starter -<br>STANDARD RATINGS |            | MODEL 1 - BASIC ATS : PU door-gasket<br>Enclosure, 3nos. Power Contactor,<br>Citation OLR, Start/Stop PB, Motor ON<br>LED |            | MODEL 2 - PREMIUM Version : PU door-<br>gasket Enclosure, MCCB Incomer, 3nos.<br>Power Contactor, Citation OLR,<br>Electronic SPP, Ammeter/voltmeter with<br>selector switches, Start/Stop PB, Phase<br>& Motor ON/Trip LEDs. |  |
|--|------------|---|------------|---|--|
| HP   | Cat. No.   | MRP [₹]   | Cat. No.   | MRP [₹]   |  |
| 7.5  | ATEA10/KOR | Contact<br>Nearest<br>Sales<br>Office<br>for<br>Prices  | ATPA10/KOR | Contact<br>Nearest<br>Sales<br>Office<br>for<br>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.

## Order Changes ●●●●

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

## For Enclosures ●●●●

- The purchase price is the standard price ruling at the date of dispatch and is subject to change without notice. All contract prices will be as on the date of contact acceptance.
- Prices are Ex-works Faridabad inclusive of Packing & forwarding.
- List price does not include Excise duty.
- List prices do not include sales tax and other levies such as octroi, these will be charged extra as applicable.
- Freight is inclusive (Within India) for Bhartia Boxes, Stainless Steel Boxes and Terminal Boxes range. For all other product ranges freight will be charged extra.
- The duties, taxes and other statutory levies are based on rates prevailing at the time of billing. Any subsequent revision of those rates having retrospective effective shall be to customer's account.
- In case where any sales tax exemption has been claimed, the purchaser is responsible for providing the necessary sales tax exemption from within the specified period, failing which the purchaser would be liable for the payment of full sales tax plus applicable interest and penalties
- **Alteration** made after receipt and confirmation of order are subject to price and delivery revision and any other expenses or levies
- **Jurisdiction** : The courts at Faridabad will have jurisdiction to settle all the dispute 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.

a strong commitment  
to serve better  
always ...



**Switchgear | Controlgear | Enclosures | Motor Starters & Submersible Pump Panels |  
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Wires & Cables | Motors | Reactive Power Management**



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a strong commitment to serve better all ways ...



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**CIN :** U31103WB1965PLC026427, Customercare No. 1800-103-9262, E-mail : [marketing@bchindia.com](mailto:marketing@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 : 0129-2304016

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

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Ahmedabad- 380 009  
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Fax : 079-26565719  
E-mail : [ahmedabad@bchindia.com](mailto:ahmedabad@bchindia.com)

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Bangalore - 560 027  
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Fax : 080-22236759  
E-mail : [bangalore@bchindia.com](mailto:bangalore@bchindia.com)

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Fax : 0172-5049905  
E-mail : [chandigarh@bchindia.com](mailto:chandigarh@bchindia.com)

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Fax : 044-24337047  
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Telefax : 020-26135224  
E-mail : [pune@bchindia.com](mailto:pune@bchindia.com)

#### Raipur

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Indira Gandhi Vyavasayik Parisar,  
Pandri, Raipur - 492 004  
Tel. : 0771-4020213  
Fax : 0771-2582680  
E-mail : [raipur@bchindia.com](mailto:raipur@bchindia.com)

#### Trichy

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

#### Vadodara

301, Third Floor, "Florence Classic",  
10, Ashapuri Co-Op. Hsg. Soc. Ltd., Opp. VUDA Housing,  
Near Cow Circle, Akota, Vadodara - 390 020  
Tel. : +91-265-6548444/2345068/2345069  
Telefax : 0265-2345068,  
E-mail : [vadodara@bchindia.com](mailto:vadodara@bchindia.com)

### Other Branch Locations

**Bhubaneswar :** [bhubaneswar@bchindia.com](mailto:bhubaneswar@bchindia.com), **Cochin :** [cochin@bchindia.com](mailto:cochin@bchindia.com), **Dehradun :** [dehradun@bchindia.com](mailto:dehradun@bchindia.com), **Gurgaon :** [gurgaon@bchindia.com](mailto:gurgaon@bchindia.com), **Guwahati :** [guwahati@bchindia.com](mailto:guwahati@bchindia.com),  
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### Resident Engineer Locations

|             |          |               |                |
|-------------|----------|---------------|----------------|
| Baddi       | Gurgaon  | Madurai       | Rajahmundry    |
| Bardhaman   | Haridwar | Muzaffarnagar | Salem          |
| Bhilai      | Hubli    | Nagpur        | Surat          |
| Bhubaneswar | Hospet   | Nashik        | Udaipur        |
| Cochin      | Jodhpur  | Patna         | Vapi           |
| Dehradun    | Kakinada | Puducherry    | Vishakhapatnam |
| Durgapur    | Kota     | Rajkot        | Warangal       |

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