

PRECISION & HEAVY DUTY LIMIT SWITCHES



BCH ELECTRIC LIMITED
we care for you



Heavy Duty Limit Switches

BCH Limit Switches are designed with one aim only to help you produce better...faster... with less production down time. These limit switches will keep operating in highly contaminated atmospheres and extremely high shock and vibration conditions. Every limit switch that comes off the Bhartia Cutler-Hammer assembly line passes through rigid quality tests before it reaches you

...

Versions

- 1NO + 1NC ▪ 2NO + 2NC ▪ Screw Terminal ▪ Pre-cabled



Operating Head

Type NL Limit Switches are available with a variety of operating heads to meet diverse applications.

Rotary lever operating heads

These heads, which are of the spring return variety, with rotary shafts, can be readily changed on the job to operate clockwise, counter clockwise or in both directions. Operating levers may be rotated and locked on the rotary shaft in any one position, through 360°. The operating head is adjustable in four 90° apart positions. The levers are provided with 19mm dia. metal rollers. Two types of roller lever operators, with a fixed length of 38mm and 76.2mm, are available. A third type had an adjustable length between 32mm and 82.5mm.

Top push operating heads

These are available in two designs. One has an adjustable push button, the length of which can be adjusted up to 8 mm. The second type has a metal roller of 11.1mm diameter.

Side push operating head

The head is also available with an adjustable push button alternatively a metal roller of 11.1mm dia. These are designed for small space and low travel application where the actuator travel is perpendicular to the switch.

Cat whisker operating head (Nylon & Steel Rod)

This head has been designed for applications where extremely low operating force is available. The operator consists of a nylon covered wire/steel rod, which is a spring return switch moving the extension in any direction from the centre operates the contacts.

Contact block

The contact mechanism is enclosed in a phenolic moulding with a transparent thermoplastic front cover. The complete unit can be removed and released without the risk of changing the operating characteristic of the limit switch.

The single pole double throw, twin break silver contacts (normally open / normally closed change over) provide quick make, quick break action and full contact pressure at all times. There is no point of zero contact pressure - no matter how slowly the switch is operated.

Both the normally open and normally closed contacts can be used simultaneously, provided they are connected on the same polarity.

The IP 67 degree conformity makes it more suitable for all adverse applications.

Operating Data

TYPES	NLL1, NLL2 NLLA, NLJW	LTPR LTPBA (mm)	LSPR LSPRH LSPBA (mm)	LCW	LLGS (mm)	LPGS (mm)
Travel to Trip A	7-12°	1.3	2.0	20°	4.5	3.5
Travel to reset from trip point B	6°	1.1■	1.7■	18°■	2.5■	2.0■
Over Travel C	34	5.5	5.1	5°■	2.5■	1.0■
Total Travel D	45 ■	6.8	7.0	25°●	7.0■	4.5
Force to Trip (max.) Kg.	1.0■	2.0	2.0	0.285●	1.5	1.5
Force to be applied at a radius of (mm)	28	-	-	25.5	-	-

■ Max. ● Min.

Electrical and Mechanical Ratings

Utilisation Category : AC15 & DC13 as per IEC947-5 IS 13947-5
 Thermal Current (Ith) : 10A
 Insulation Voltage (Ui) : 600 V AC
 240 V DC

Operational Current and Voltage

AC15 rating

Voltage	110V	220V	440V	550V
Rating	6.0A	3.0A	1.5A	1.2A

DC13 rating

Voltage	24V	60V	110V	220V
Rating	1.0A	0.5A	0.2A	0.1A

Contact Combination : 1NO + 1NC, 2NO + 2NC
 Frequency of Operation : 2500 operations per hour
 Mechanical Life : 20 x 10⁶ operations
 Enclosed Category : Zinc die cast enclosure to IP67
 Terminal Capacity : 2.5 mm² solid or stranded

Pilot Devices & Limit Switches

Heavy Duty Limit Switch - Snap Action Type NL

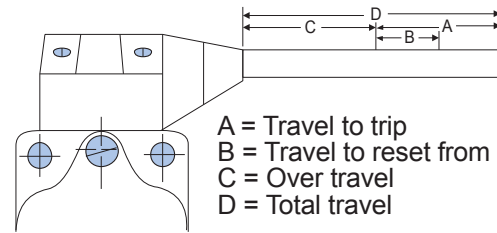
TYPE	DESCRIPTION	CAT. NO SCREW TERMINAL (1NO+1NC)	CAT. NO. PRECABLED (1NO+1NC)	SCREW TERMINAL CAT NO. (2NO+2NC)	PRECABLED CAT NO. (2NO+2NC)
Roller Lever	Standard-38mm	NLL1	NLL1C	NLL1-22	NLL1-22C
	Standard-76.2mm	NLL2	NLL2C	NLL2-22	NLL2-22C
	Adjustable	NLLA	NLL4C	NLLA-22	NLLA-22C
	Maintained Type LL1	NLL1M	NLL1MC	NLL1M-22	NLL1M-22C
Push Roller	Maintained Type LL2	NLL2M	NLL2MC	NLL2M-22	NLL2M-22C
	Maintained Type LLA	NLLAM	NLL4MC	NLLAM-22	NLLAM-22C
	Top	NLTPR	NLTPRC	NLTPR-22	NLTPR-22C
Push Button	Side	NLSPR	NLSPRC	NLSPR-22	NLSPR-22C
	Top Adjustable	NLTPBA	NLTPBAC	NLTPBA-22	NLTPBA-22C
Cat Whisker	Side Adjustable	NLSPBA	NLSPBAC	NLSPBA-22	NLSPBA-22C
	Nylon Rod	NLCW	NLCWC	NLCW-22	NLCW-22C
Fork Type	Steel Rod	NLJW	NLJWC	NLJW-22	NLJW-22C
	Roller in same Line	NLLF	NLLFC	NLLF-22	NLLF-22C
	Offset Rollers	NLLFO	NLLFOC	NLLFO-22	NLLFO-22C
	Roller in same line	NLLFM	NLLFMC	NLLFOM-22	NLLFOM-22C
General Purpose	Maintained Offset Rollers	NLLFOM	NLLFOMC	NLLFM-22	NLLFM-22C
	Angular Roller	LLGS	-	-	-
	Top Plunger	LPGS	-	-	-

Spares

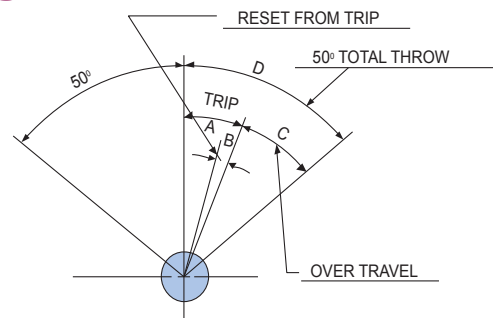
DESCRIPTION	CATALOGUE
38 mm Lever	SP40L1
76.2 mm Lever	SP40L2
Adjustable Lever	SP40LA
Operating Head	SP40HLG
Operating Head	SP40HL
Operating Head	SP40HTP B or R
Operating Head	SP40HSP B or R
Operating Head with Lever	SP40CW
Limit Switch Assembly	SP40S1
Operating Head in Line	SP40LF
Operatng Head Offset	SP40LFO
Operating Head Maintained	SP40HLM

B - Button R - Roller

Linear Motion

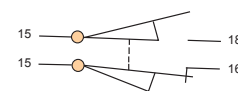


Angular Motion



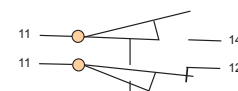
Wiring Diagram

1NO + 1NC

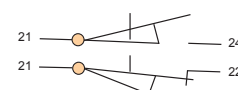


Must be same polarity

2NO + 2NC

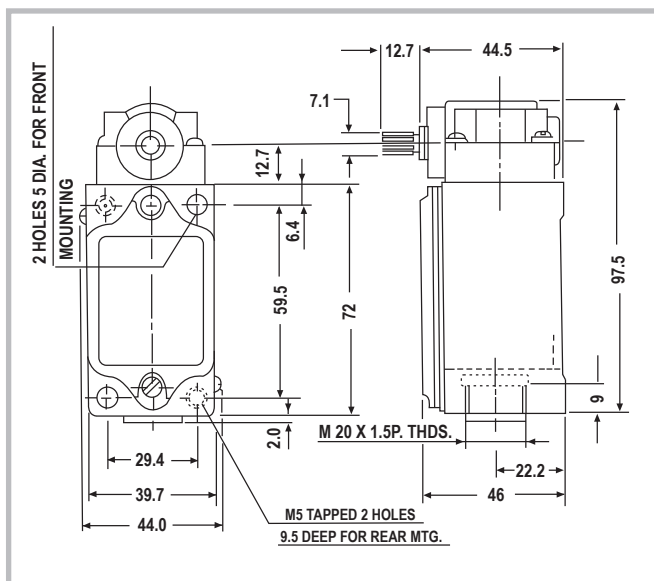


Must be same polarity

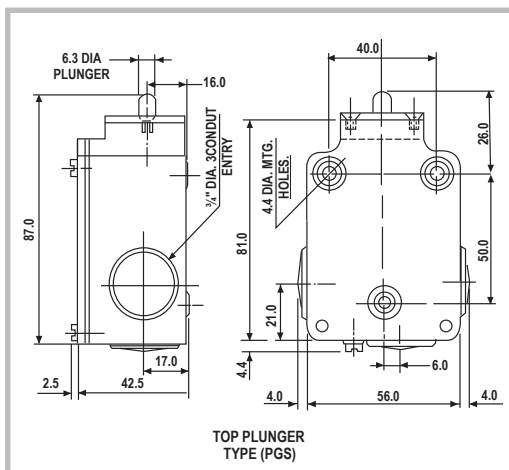
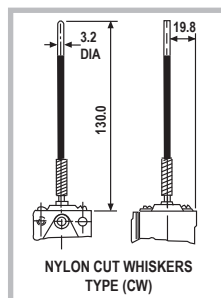
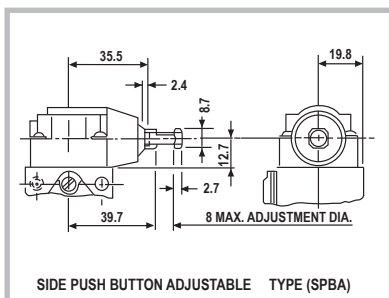
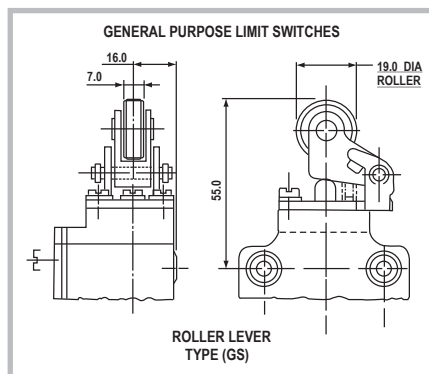
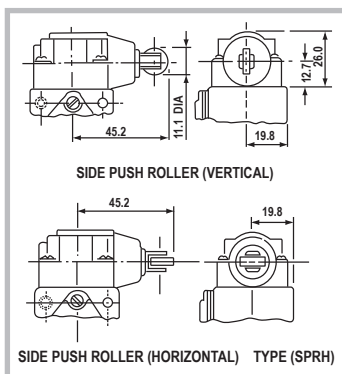
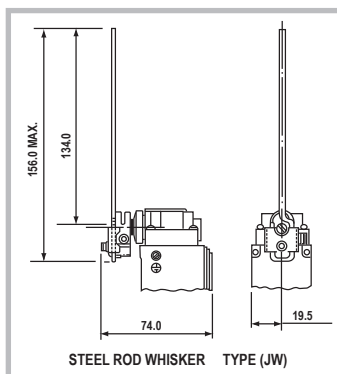
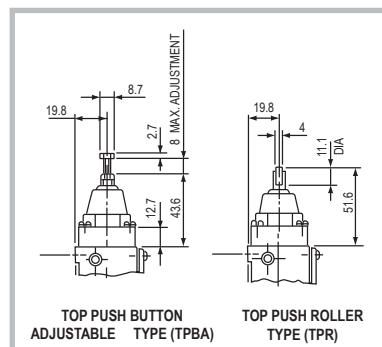
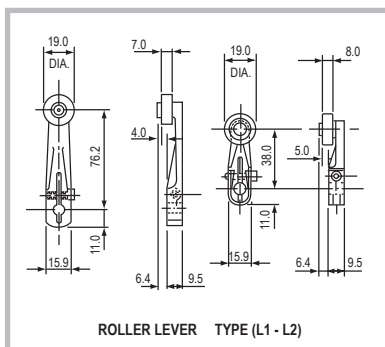
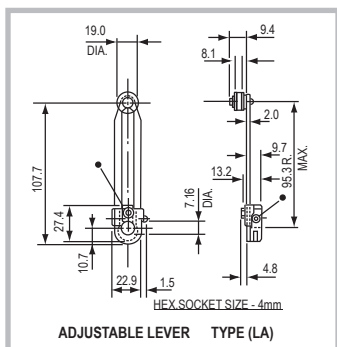
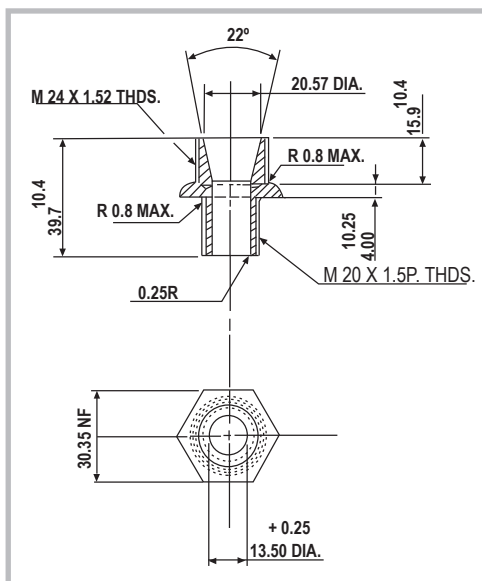


Dimensions

Conduit Entry



Surface Mounted Side Operated



Weights :

Oil Tight Limit Switches (except type LLG) : 500 gms.
 General Purpose Limit Switch (LLG) : 300 gms.

Precision Limit Switches



Precision Limit Switches are designed for industrial applications. These are small in size, reliable in operation, have exceptionally long life and are accurate. The wide variety of switch operating mechanisms coupled with the choice of either single pole 1NO + 1NC or double pole 2NO + 2NC changeover contacts permit easy selection and application for many needs.

Contact Mechanism

- Quick make & quick break action.
- Low bounce mechanisms.
- Long life on high load applications.
- Serrated-silver stationary contacts, definite wiping action and high contact pressure assure reliability on dry circuit applications.
- Semi dust-tight moulded, phenolic case of great physical strength and high arc-resisting capacity.

Versatile

A wide variety of operators are available for use in combination with the basic switch. These operators with individual mounting variations afford a high degree of versatility.

Electrical and Mechanical ratings

Utilisation category : AC 15 and DC 13 as per IEC 337-1 and IS : 6875
 Thermal current (Ith) : 15 A
 Insulation voltage (Ui) : 600 V AC

Operational current and voltage

AC15 RATING	SINGLE POLE (1NO + 1NC CHANGEOVER CONTACTS)	DOUBLE POLE (2NO + 2 NC CHANGEOVER CONTACTS)
110V	4.0A	3.0A
240V	2.0A	1.5A
440V	1.0A	0.8A
600V	0.8A	0.6A

DC13 RATING	SINGLE THROW	DOUBLE THROW	SINGLE THROW	DOUBLE THROW
115V	2.0A	0.50A	1.0A	0.2A
230V	0.5A	0.20A	0.3A	0.1A
600V	0.1A	0.02A	0.1A	-

Mechanical & electrical life : 20x10⁶ operations without operator
 10x10⁶ operations with operator
 Terminal capacity : 2.5mm² solid or stranded conductors
 Frequency of operation : 2500 operations per hour (max.)

Types Of Operators

Push Button Plunger

These are designed for one hole panel mounting. The plunger mechanism is of oil-tight construction and prevents any ingress of oil, including coolant. These operations are designed for an in-line actuating motion with controlled over-travel.

Top Push Roller Plunger

Operators are designed for one hole mounting and are of oil-tight construction. The roller plunger comes assembled either in line with the length of the contact block or at right angles to it. This allows the roller to accept cam or slide operation from any of the four directions.

Six Inch (150 mm) Lever

These operators provide either top and right hand mounting or top and left hand mounting. with this do-it-yourself operator, the lever may be formed by the user to satisfy unusual requirements and can be cut or bent to any desired length or shape.

Roller Lever

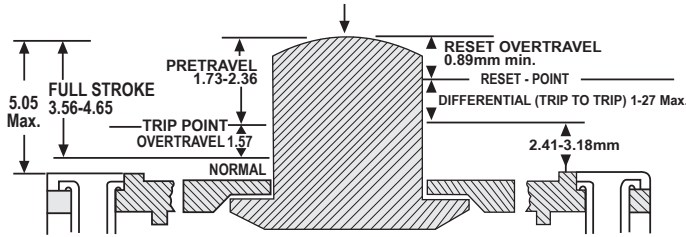
These operators are available with either top and right hand mounting or top and left hand mounting and are equipped with a steel roller which may be operated by a cam or some similar actuating device. Operation is provided in both directions.

Selection Chart

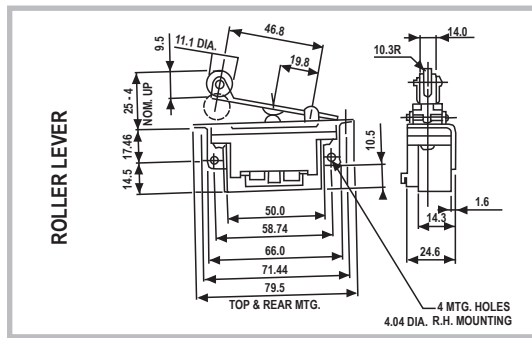
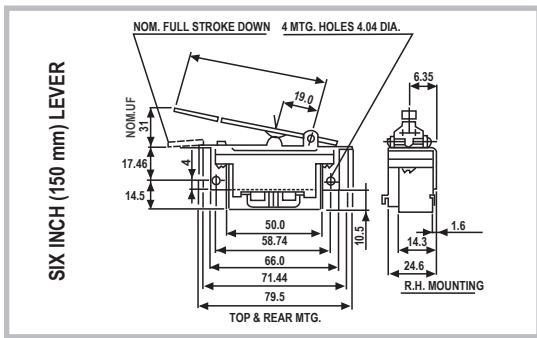
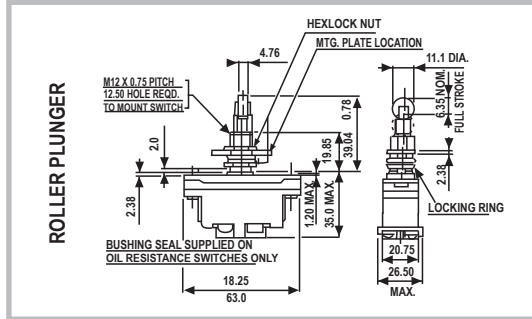
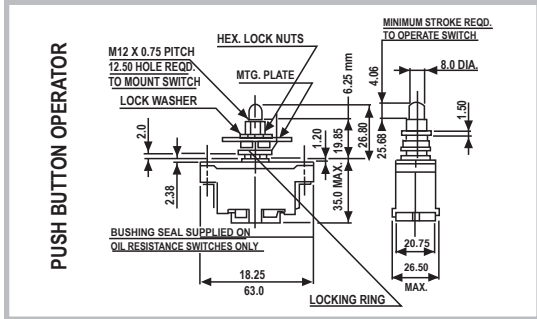
DESCRIPTION	CATALOGUE CODE	
	1NO + 1NC	2NO + 2NC
With Top Push Button Operator	PSTPB	PSTPB2
With Top Push Roller Operator assembled in line with contact block	PSTPRA	PSTPR2A
With Top Push Roller Operator assembled at right angles to contact block	PSTPRB	PSTPR2B
With Six Inch Lever Operator (right hand mounting)	PSSILR	PSSIL2R
With Six Inch Lever Operator (left hand mounting)	PSSILL	PSSIL2L
With Roller Lever Operator (right hand mounting)	PSRLR	PSRL2R
With Roller Lever Operator (left hand mounting)	PSRLL	PSRL2L
Without Operator	SP20S1	SP20S2

The Repeat Accuracy Of Individual

OPERATING PRESSURE min. 0.387 Kg. max. 0.595 Kg



The repeat accuracy of individual switch trip points is such that after millions of operations they do not drift more than two or three thousands of an inch.



BCH ELECTRIC LIMITED

Visit us at : www.bchindia.com

Corporate Office : 1105, New Delhi House, 27, Barakhamba Road, New Delhi - 110 001 Tel. : 91-11-23316029/3610/6539 Fax : 91-11-23715249 E-Mail : marketing@bchindia.com
Registered Office : Block 1E, 216, Acharya Jagadish Chandra Bose Road, Kolkata - 700 017
Works : 20/4, Mathura Road, Faridabad - 121 006 (Haryana) Tel. : 0129-4063000/4061026 Fax : 0129-2304024

Sales Offices :

Ahmedabad
93, City Centre,
Near Swastik Char Rasta,
C.G.Road, Navrangpura,
Ahmedabad - 380 009
Tel.: (079) 26565719, 26565728
Mobile: 98256-07601
Fax : (079) 26561210
E-mail: ahmedabad@bchindia.com

Bangalore
B.M.H. Complex, 1st Floor,
No. 22, Kengal Hanumanthiah Road,
Bangalore - 560 027
Tel. : 080-22273478, 41144878, 41144879
Mobile : 98455-46105
Fax : 080-22236759
E-mail : bangalore@bchindia.com

Bhubaneswar
Plot No. 4708/1,
Gajapati Nagar,
Bhubaneswar - 750 005
Tel. : 0674-2301767
Mobile : 98610-81767
E-mail: bhubaneswar@bchindia.com

Chandigarh
SCO 121-22-23, 1st Floor,
Sector 34-A, Chandigarh - 160 022
Tel. : 0172-5078957
Mobile : 98554-87089
E-mail : chandigarh@bchindia.com

Chennai
LVR CENTRE, 3rd Floor
No. 7, Seshadri Road,
Alwarpet, Chennai - 600 018
Tel. : 044-24997042, 24997002
Mobile : 98402-85500
Fax : 044-24996853
E-mail : chennai@bchindia.com

Cochin
2nd Floor, 32/1495
No. 7, Seshadri Chambers,
By Pass Junction,
Cochin - 682 025
Tel.: 0484-6593697
Mobile : 98477-43393
E-mail : cochin@bchindia.com

Coimbatore
87, Dr. Nanjappa Road,
Coimbatore - 641 018
Tel. : 0422-2305311
Mobile : 98430-53555
Fax : 0422-2302599
E-mail : coimbatore@bchindia.com

Faridabad
110 & 117, Om Shubham Tower
Neelam Bata Road, N.I.T.
Faridabad - 121 001 (Haryana)
Mobile : 98180-10700
E-mail : faridabad@bchindia.com

Gurgaon
SF-203, Navkriti Arcade
Block-A, Sushant Lok, Phase-II
Gurgaon - 122 001 (Haryana)
Mobile : 99101-55464
E-mail : gurgaon@bchindia.com

Guwahati
2nd Floor, Maya Ville,
Borthakur Mill Road, Ulubari
Guwahati - 781 0007
Mobile : 09435407024
E-mail : guwahati@bchindia.com

Hospet
940C, Third Cross
Third Ward, Patel Nagar
Station Road,
Hospet-583201
Tel: 09845930782
Email: hospet@bchindia.com

Hubli
A-5, Navaniketan Apartments
Ashok Nagar
Hubli (Karnataka)
Tel. : 0836-3090472
Mobile No. 98602-90471
Email- hubli@bchindia.com

Hyderabad
210, Prajap Corporate House,
1-10-63&64, Chikoti Garden,
Begumpet, Hyderabad - 500 016
Tel. : 040-66206263/27763325
Mobile : 98493-99240
Fax : 040-66207273
E-mail : hyderabad@bchindia.com

Indore
330-331, Indraprastha Tower,
6, MG Road, Indore - 452 001
Tel. : 0731-2510011
Mobile : 98266-66091
E-mail : indore@bchindia.com

Jaipur
25, Hathroi, Gopalbari,
Jaipur - 302 001
Tel. : 0141-5104521
Mobile : 98290-10813
Fax : 0141-2363521
E-mail : jaipur@bchindia.com

Jamshedpur
3rd Floor, Aastha Trade Centre,
'O' Road, Bistupur,
Jamshedpur - 831001
Tel. : 0657-6573507
Mobile : 98351-82109
Fax : 0657-2420439
E-mail : jamshedpur@bchindia.com

Kolkata
East India House,
3rd Floor, 20-B, Abdul Hamid
Street, Kolkata - 700 069
Tel. : 033-22138508 / 10
Mobile : 98303-36101
Fax : 033-22138512
E-mail : kolkata@bchindia.com

Lucknow
Madan Plaza, 3rd Floor,
14, Station Road, Lucknow
Tel. : 0522-4025997/4025997
Mobile : 98399-12304
E-mail : lucknow@bchindia.com

Ludhiana
S.C.O - 18, 1st Floor,
Feroze Gandhi Market,
Ludhiana - 140 001
Tel. : 0161-5021807
Mobile : 98765-87088
Fax : 0161-2771807
E-mail : ludhiana@bchindia.com

Madurai
E 168/69, Santanam Road
TVS Nagar
Madurai-625003
Tel: 09843133990
Email: madurai@bchindia.com

Mumbai
A-151, Mittal Tower,
Nariman Point,
Mumbai - 400 021
Tel. : 022-22822947/22826039
Mobile : 98923-00706
Fax : 022-22822858
E-mail : mumbai@bchindia.com

Nagpur
Block No. 238-B,
Opp. Dharamdas Darbar,
Nr. Choudhary Chowk, Jaripatka,
Nagpur, Maharashtra - 440 014
Mobile : 99701-80877
E-mail : nagpur@bchindia.com

New Delhi
801, Akash Deep,
26A, Barakhamba Road,
New Delhi - 110 001
Tel. : 011-23313878
Mobile : 98102-12502
Fax : 011-23739230
E-mail : delhi@bchindia.com

Pune
8, Sarosh Bhawan,
16-B/1, Dr. Ambedkar Road,
Pune - 411 001
Tel. : 020-26052590
Mobile : 98220-11086
Fax : 020-26135224
E-mail : pune@bchindia.com

Raipur
2nd Floor,
Building No- B- 234,
Indira Gandhi
Vijayasayik Park,
Pandri, Raipur - 492 004
Tel. : 0771-4020213
Mobile : 98266-66092
E-mail : raipur@bchindia.com

Surat
801/A, 21st Century Business Centre
Ring Road
Surat - 395 002
Mobile : 91 9825607617
E-mail : surat@bchindia.com

Trichy
Kingston Park,
Second Floor,
19/1, Puttur High Road,
Ramalinga Nagar,
Trichy - 620 003,
Mobile: 99406 76502
Email : trichy@bchindia.com

Vadodara
101, Toran Complex,
Vikas Nagar
Old Padra Road
Vadodara - 390 020,
Tel. : 0265-6548444
E-mail : baroda@bchindia.com

Vishakapatnam
Venu Vaithavam, 2nd Floor,
Flat No. 201, Palace
Layout, Pedda Wallair,
Vishakapatnam - 530 017
Mobile : 98493-99238
E-mail : vizag@bchindia.com

Western UP & Uttarakhand
8, Cooperative Industrial Estate
Patel Nagar
Dehradun : 248001
Uttarakhand
Mobile : 9760005793
E-mail : dehradun@bchindia.com

Resident Engineers Locations Tel.

Agartala	94361-28939	Kolhapur	98906-26205	Kota	98290-14899	Mangalore	98457-31944	Tirupathi	98661-30930
Haldwani	99970-12643	Nashik	98900-12944	Navi Mumbai	98923-00701	Pondichery	98942-22033	Warangal	98495-51691
Kanpur	98392-34539	Salem	98433-19533	Silchar	94354-04033	Siliguri	98320-11433		
Muzaffarnagar	98970-73741	Udaipur	98292-44085	Vijayawada	98662-20504	Bhilai	98266-12907		
Renukoot	98399-55117	Bhopal	98266-66093	Baddi	93187-78975	Gwalior	98268-03658		
Ambala	93541-18839	Ghaziabad	98107-44937	Gorakhpur	98392-24988	Jodhpur	98292-18618		
Durgapur	97320-03364	Jabalpur	98268-03656	Jalandhar	98763-47188	Rajkot	98256-04709		

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