

BENTEC

BENLO[®]
A PRODUCT OF **BENTEC** INDIA LTD.

Your Safety...Our priority!



ZEN
MCB



IS / IEC 60898-1-2015



CML - 5159870

ISO-9001-2015 COMPANY

MCB Miniature
Circuit Breaker

PREFACE

The world around is going fast and our lifestyle is also changing. However, one factor that remained inseparable in our day to day working is the power of electricity. Whether it be the residential, commercial or industrial sector, the distribution needs for running our systems, equipment or household appliances is continuously evolving. Electrical power if not controlled can prove lethal. Hence, SAFETY is the prime concern for checking overloads, short-circuits which can lead to losses. BENTEC Circuit Breakers have been designed to meet such stringent conditions, which meet salient specifications IS / IEC : 60898 (Part 1) : 2015

Bentec MCB is a high fault capacity thermal magnetic type of breaker, which protects against overload and short-circuits. Overload protection is achieved with a thermal bimetal strip, which gets heated in case of overload that in turn pushes the trip latch, which releases the contacts. In case of short circuits, the high fault current energizes the magnetic coil resulting in the plunger striking the trip lever, which ensures immediate release of the breaking mechanism

SALIENT FEATURES OF BENTEC MCBs

- ◆ Meets Latest Standards
- ◆ Current Limiting Design
- ◆ Fire Retardant Body
- ◆ Energy Saving
- ◆ Clause 9.6 of 60698
- ◆ Shock Proof: Finger Proof as per Test
- ◆ Quick Break Operating Mechanism
- ◆ 12 Plate Arc Chute
- ◆ Angular Vents
- ◆ D/N Rail Mounting (35mm Din Rail)
- ◆ Pad covering is ON/OFF position

CURRENT LIMITING FEATURE

This feature enables the MCB to cut off a prospective fault current at a much lower value than the original peak thereby substantially reducing the let through energy (12t) and opening time. During short circuit conditions with very high current flowing through the circuit the contacts are exposed to a repelling magnetic field which initiates an arc and increases the resistance of the circuit. This in turn enables the MCB to open in much shorter time thereby limiting the current and the associated thermo-dynamic stress on the system by reducing the let through energy level.

HOUSING

The housing of Bentec MCBs are made of flame-retardant non-hygroscopic material with high strength and tough features that ensure high melting point, high dielectric strength as well as better temperature deflection under load. The MCBs also provide a low linear thermal expansion coefficient.

HIGH BREAKING CAPACITY

As per the latest standard (IS / IEC : 60898 (Part 1) : 2015) Bentec MCBs are tested for a breaking capacity of 10kA and are ISI marked.

CONTACTS

The contacts are made of Silver-inlaid copper which ensures greater life and maximum safety. These contacts are low resistance resulting in low watt loss. The contacts are designed to have zero bounce.

ANGULAR VENTS

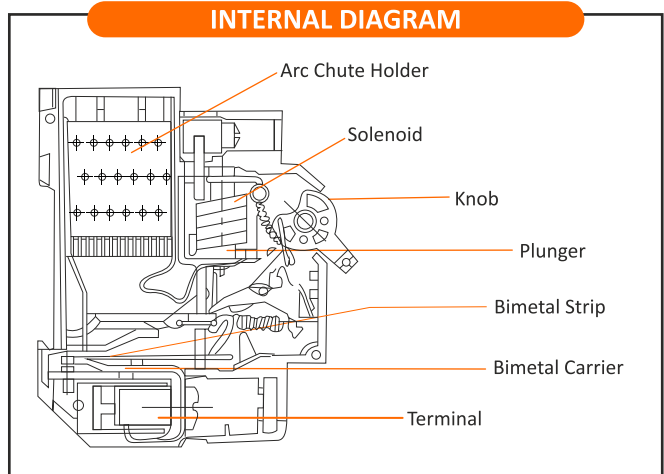
To ensure higher electrical and mechanical life of the product, Bentec MCBs are provided with angular vents which prevent dusts from directly settling on the contacts by limiting its ingress. The lower the foreign impurities on the contacts the higher the life. The vents also provide egress to the hot gases produced during short circuit within the MCB housing.

EFFECTS OF FREQUENCY VARIATIONS

The MCBs are designed to operate at AC frequency range of 50/60 Hz. However,

MOUNTING ARRANGEMENT

Bentec MCBs are installed directly on 35mm DIN Rail by simple snap-on-fixing resulting in ease of installation and removal. The DIN clip is made of engineering plastic to give a potential free mounting arrangement.



TECHNICAL AND ECONOMIC ADVANTAGE

Short Circuit Capacity	High short circuit making and breaking capacity
Current Limiting	Compounded with hammer-tripping ensures low let through energy
Discrimination	Excellent discrimination with upstream and downstream breakers and fuses
Variety	Wide range to suit different application
Construction	Compact and modular
Installation	Wide range of distribution boards to facilitate installations for various requirements
Maintenance	Maintenance free as based on fuseless technology

OPERATING MECHANISM

Bentec MCBs have a quick make, quick break, trip-free mechanism i.e. Even if the MCB knob is held in the "ON" position, the MCB will trip in case of overload or short circuit.

IMPACT RESISTANCE

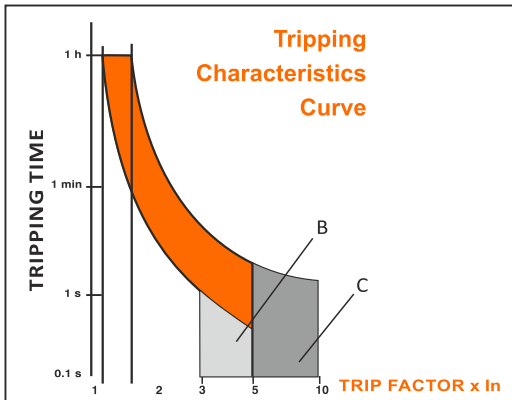
Keeping in mind the vibration hazards of dynamic installations like motors, generators and locomotives, Bentec MCBs are designed to withstand high vibration impacts upto 3" g".

CHARACTERISTICS CURVES

Bentec MCBs are available with versions for different types of applications they are.

B CURVE - LIGHTING/DISTRIBUTION CIRCUITS

Ideally suitable for predominantly resistive loads like electric



C CURVE - MOTOR CIRCUITS

These characteristics ideally suits applications demanding high inrush current and requires closer over load protections. Such loads are predominantly inductive in nature like motors, transformers, gas filled lamps, air conditioners, refrigerators and other equipments.

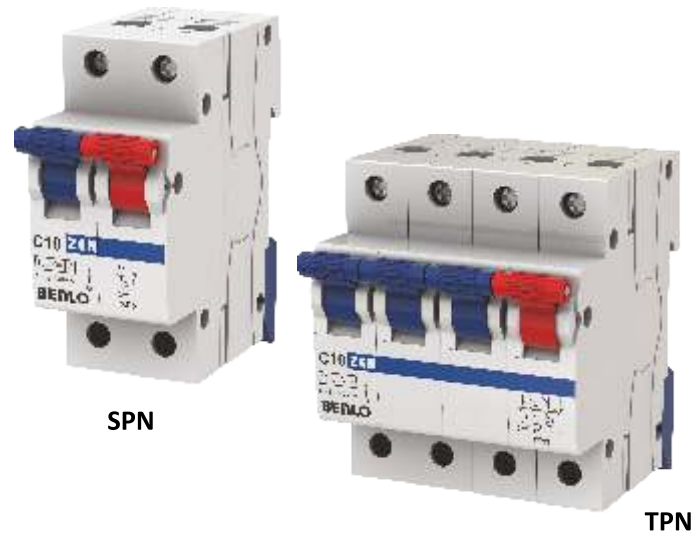
LOW WATT LOSS

Bentec MCBs have been designed to minimize energy loss through unique contact configuration and reduction of hot spots. Watt loss per pole is far lower than the specified IS / IEC : 60898 (Part 1) : 2015 Watt Loss Table.

Rated Current	Max. Allowable Watt Loss per Pole as per IS / IEC : 60898-1 : 2015	Bentec MCB Watt Loss per Pole
<10	3.0	1.2
10<In<=16	3.5	2.6
16<In<=25	4.5	2.4
25<In<=32	6.0	3.5
32<In<=40	7.5	4.3
40<In<=50	9.0	
50<In<=63	13.0	

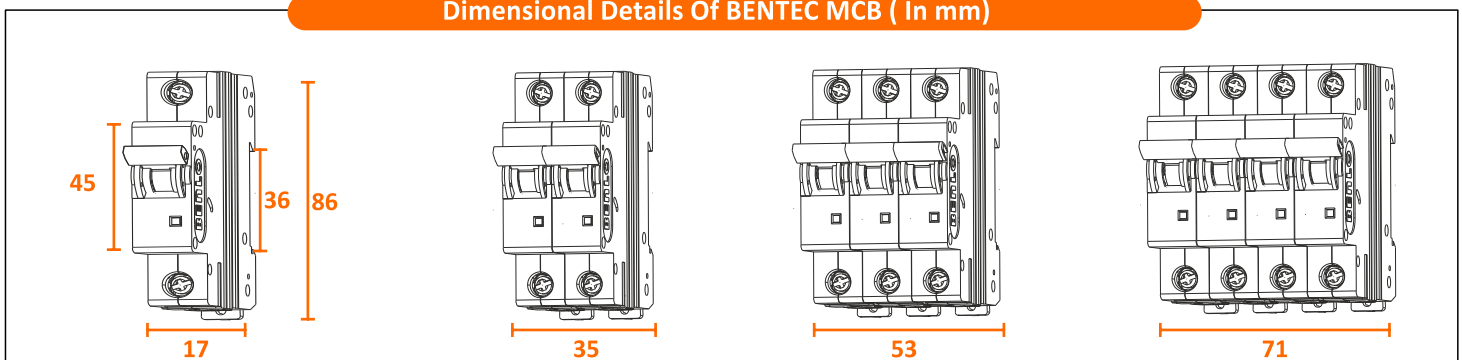
Application Chart

Appliances	Capacity / Approx Wattage at 240 Volts A.C.	Required MCB in Amperes
Air Conditioners	1 ton / 1.5 KW 1.5 ton / 2.5 KW 2 ton split / 3.5 KW	10 15 20
Refrigerators	165 liters 285 liters	1.5 2
Room Heaters	1000 watts 2000 watts	6 10



heaters, ovens, geysers, gls lamps etc these characteristics offer excellent protection under over loads and short circuits for such installations.

Dimensional Details Of BENITEC MCB (In mm)





SP



DP



TP



FP

TECHNICAL SPECIFICATION

Specifications	IS / IEC : 60898 (Part 1) : 2015
Number of Poles	1, 1+N, 2, 3, 3+N and 4
Rated Currents (In)	0.5 to 63A
Tripping Characteristics	B, C and D Characteristics
Rated Voltages (Ue)	240/415 VAC
Rated Breaking Capacity (Icn)	10 kA
Rated Frequencies	50/60Hz
Housing / Cover Material	Nylon GF 25 %
Insulation Voltage (Ui)	500 V
Type of Terminals & Maximum Cable Cross Section	25 mm Box Type Terminals on the incoming & 25 mm Block Type Terminals on the outgoing
Impulse Power Frequency Voltage	3 KV (50/60 Hz)
Impulse with stand Voltage (Uimp)	5 KV (50/60 Hz)
Degree of Protection	IP-20
Mounting	Clip Mounting Rails, 35mm
Ambient Temperature	Tmax=55°C Tmin=-25°C



Corporate Office
BENTEC INDIA LIMITED
 150, Upen Banerjee Road,
 Kolkata, West Bengal, Pin : 70060



info@bentecindia.com



Customer Care No.
033-24 01 74 21



bentecindia.com

BRANCH OFFICE

AHEMDABAD : 9669 099 969 | **ASANSOL** : 8250 552 792 | **BANGALORE** : 9845 007 857 | **BHAGALPUR** : 8789 817 707
BHUBANESWAR : 9831 281 573 | **CHENNAI** : 9748 013 248 | **GUWAHATI** : 9831 111 030 | **HYDERABAD** : 9831 194 283
INDORE : 9329 027 210 | **JAIPUR** : 9314 033 313 | **JALANDHAR** : 9915 800 483 | **LUCKNOW** : 9336133 222
MUMBAI : 9324287968 | **NAGPUR** : 9604 052 882 | **NASIK** : 9324 287 968 | **NOIDA** : 9950 227 722 | **PATNA** : 9903 000 780
PUNE : 9405 006 489 | **RAIPUR** : 9109 108 886 | **RANCHI** : 9386 588 496 | **ROHTAK** : 9315 326 004 | **RAJKOT** : 9669 099 969
SILIGURI : 9940 084 022 | **SURAT** : 9374 141 524 | **VARANASI** : 9554 966 555