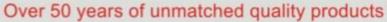
#### **OUR PRODUCT RANGE CATALOGUE**







MCB / MCCB / ELCB OIL STARTERS OIL PANELS AIR STARTERS CONTACTERS AIR PANELS MAIN SWITCHES REVERSING SWITCHES **PREVENTORS** AMMETER & VOLTMETER **KVAR ENERGY STATIC METERS** FANS MONOBLOCK SUBMERSIBLE PUMP ELECTRIC MOTOR AUTOMATIC STORAGE & WATER HEATERS WATER PURIFIER AIR COOLER





#### **ELECTRICAL DIVISION**

MCB / MCCB / ELCB

**OIL STARTERS** 

OIL PANELS

AIR STARTERS

CONTACTERS

AIR PANELS

MAIN SWITCHES

**REVERSING SWITCHES** 

**PREVENTORS** 

AMMETER & VOLTMETER

**KVAR** 

**ENERGY STATIC METERS** 

FANS

MONOBLOCK

SUBMERSIBLE PUMP

ELECTRIC MOTOR

**AUTOMATIC STORAGE &** 

WATER HEATERS

WATER PURIFIER

AIR COOLER









Natural Gas Division

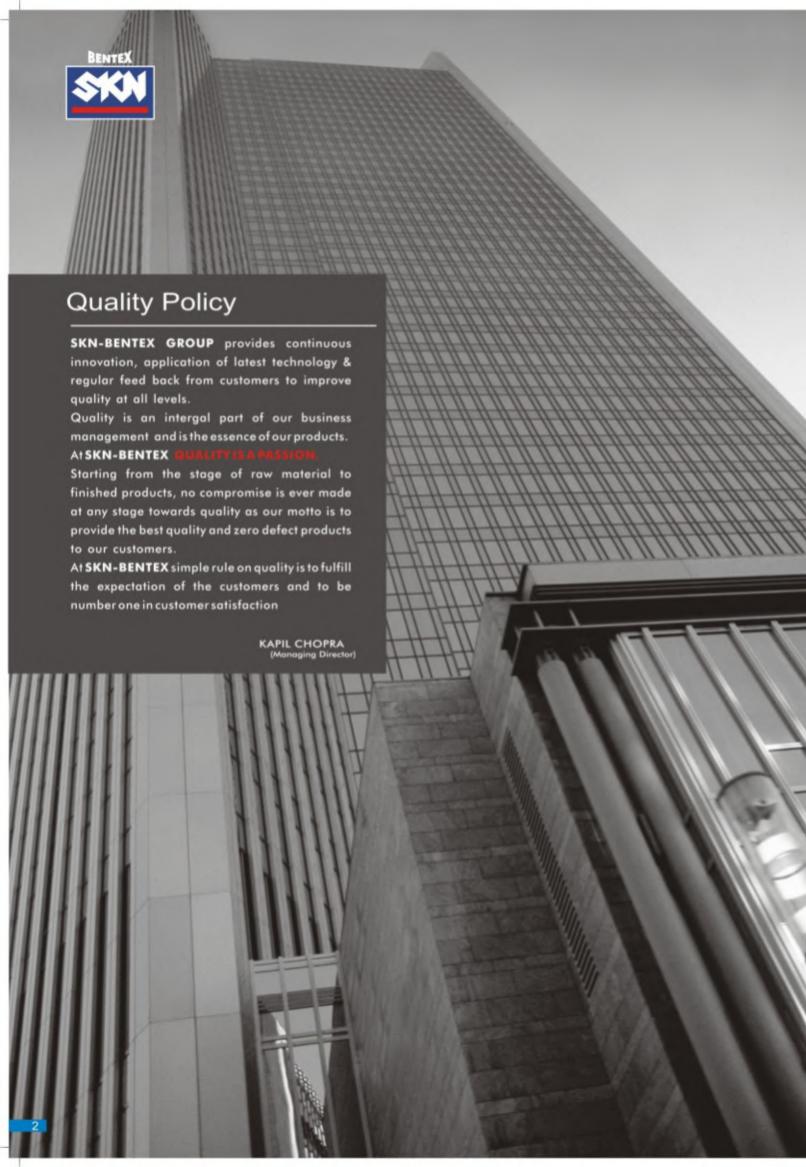
**Building & Construction** 

Pipeline Project, CNG Pumps. Township development, and SEZ (Special Economic Zone) Shopping Mall





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KAPIL CHOPRA (C.M.D.)
FOUNDER PRESIDENT & CHIEF PATRON
Apex Chamberof commerce & industries



President & Chief Patron : Apex Chamber OF commerce & Industries

Chief Patron & Ex President :

Federation of Delhi Small Industries Association

President :

Naraina CETP Society

Chairman:

ITI (Pusa Campus) & sir CV Raman I.T.I. Dheerpur Delhi

Chairman:

Property Tax Action Committee of Delhi

Vice Chairman : UVCT (Charitable Trust)

over (charitable in

Ex President :

Naraina Industries Association



## An Explosive Growth Record

\*\*\* BENTEX\* has the most reputed & trusted name in the field of manufacture of electrical devices with latest international design & technology keeping in view the best quality standards. SKN-BENTEX GROUP needs no introduction, as it is a well known name in the field of Motor Starters, Switchgears products, Circuit breaker, Fans, Pumps & Meters, marketed by constantly creating innovative solution & upgrading the products to meet the ever changing need of the discerning market.

SKN-BENTEX GROUP's products are at the fore front of innovation in industrial and agricultural field for measurement, protection and control of electricity. We being the pioneers and leaders in the field of manufacture electrical devices with latest international design and technology keeping in view the best quality standards. SKN-BENTEX GROUP has a rich history of success, which has been achieved through enterprise, endeavors, dedication,team work and sincere service of pride in result oriented performance. Our single motto is to produce quality product and ensure total customer satisfaction & value for money has paid rich dividends. The group companies have adopted International Standard and have been certified for ISO-9001 certification from British Standards Institution (BSI) accredited by RVA Dutch Council & UKAS Quality Management. The company has a nation-wide marketing network having H.O. at Delhi. Our products are marketed through our 500 strong dealers all over India. A separate after-sales & service cell provides prompt service. The products are being exported to many countries across the world.

Besides this, SKN-BENTEX GROUP is engaged in the field of Real Estate and is developing SEZ. Recently the group has embarked in city gas distribution in Haryana & Rajasthan. Our 4 units located in Naraina industrial area (New Delhi) & one in Roorkee (Uttaranchal)







## MCB's

Indian Electrical market for manufacturing the ultimate & leading protection devices in electricals.

BENTEX - Linger MCB is a product of
BENTEX Group. BENTEX - Linger MCB design
is based on high performance thermal / magnetic
current limiting principal, for 10kA breaking
capacity for full range of 0.5-100 Amp, 240/415V
AC supply for single phase & three phase.
BENTEX Group is an ISO certified Co. and
quality systems are governed by ISO 9001-2008
BENTEX - Linger MCB, is an advanced
technology Miniature Circuit Breaker, specially
designed to control and protect all types of
Electrical installations such as Domestic,
Commercial and Industrial.

BENTEX-Linger MCB safeguards the installations against damage resulting from short circuit fault and circuit overloads and also serves unique dual purpose of both a switch as well as fuse. BENTEX-Linger MCB's are conforming to IS 8828-96. Supersead by IS/IEC 60898-1:2002

#### ISO 9001- 2008 CERTIFIED CO.



#### Salient Features

- Conforms to latest standards IS/IEC 60898-1:2002
- Current limiting design
- Fire Retardant material
- Energy saving
- Shock proof & impact resistant
- High breaking capacity
- Quick break &. make mechanism
- Angular vents
- Superior contact material
- DIN Rail mounted
- Overload and short-circuit protection

BENTEX-Linger MCB's are covering Entire range of:

B Type (6 Amp. to 40A), C Type (0.5 to 100 Amps) Isolators (40 A to 100 Amp.)

BENTEX -Linger MCB's are based on internationally accepted principal of

"CURRENT LIMITING".

B Type This series is specially suitable for protection of equipment like Ovens, GLS lamps, Geysers and general electrical lighting systems. The magnetic tripping of the B type MCB starts above 3 times of the rated current. C Type MCB's are designed to protect circuits with inductive loads like motor S. generator etc. The magnetic tripping commences above 5 times the rated current...





## MCB's



Technical Specification of BENTEX-Linger MCB

Specification : MCB conforming to IS/8828-1996

Supercede by IS/IEC 60898-1:2002

Models : SP. SPN, DP. TP. TPN, & FI

I-pole, I-pole+N, 2 Poles, 3 Poles, 3 Poles+N, & 4 Poles

Rated Current : 0.5, 1, 1.6, 2, 2.5, 3, 4.5, 6, 8, 10, 13, 16, 20, 25, 32,

40, 63A, 80A, 100A

Rated Voltage : 240/415 Volts AC

Rated Frequency : 50 Hz

Characteristics : 'B' Type for 'C' Type

Ambient Temp : 30°C

Housing : Glass fibre reinforced Polyester

Breaking Capacity : 10 K Amps as per IS/IEC 60898-1:2002

Terminals : 25 mm²

Current Limiting principal ensures low value of peak current, cut-off and minimum let through energy I\*t.

Low-cut off current reduces electromagnetic stress and damage to contact.

#### Trip Free Mechanism

Prevents MCB from beuing held 'ON', thus provides safety if knob is locked in 'ON' position.



#### **Thermal Tripping**

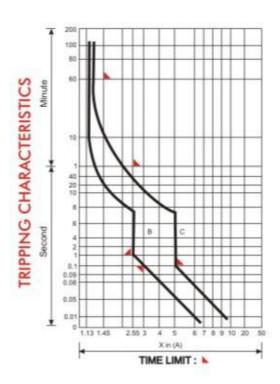
As per IS:8828:96	No Tripping Current	Tripping Current	Time Limits	Hold Current	Trip Current	Time Limits
B Curve	1.13XIn		<u>&lt;</u> 1h	3 X In		> 0.1s
		1.45 X IN	<1h		5 X IN	<0.ls
C Curve	1.13 X In		<u>&lt;</u> 1h	5 X In		<0.1s
		1.45 X IN	<1h		10 X IN	<0.ls
		2.55 xln			< 60s for l	





#### Power Loss Per Pole in Watt

Rated Current	in As per	Bentex-Linger
	IS/IEC 60898-1:20	002 SKN
<10	3.00W	1.5W
10 < In < 16	3.50W	2.5W
16 < In < 25	4.50W	3.0W
25 < In < 32	6.00W	4.0W
32 < In < 40	7.50W	4.5W
40 < In < 50	9.00W	6.0W
50 < In < 63	13.00W	11.5W



#### **DESIGN FEATURES**

Modern manufacturing techniques, latest sophisticated equipments, good quality raw materials and well design of BENTEX - Linger MCB's make it able to withstand upto 10 KA fault in installations.

**HOUSING**: The housing of MCB is injection moulded from special grade glass fibre reinforced polyester. The housing can withstand high temperature and is impact resistant.

OPERATING MECHANISM: The operating mechanism is so designed as to make it completely safe and dependable. Glass fibre reinforced body of MCB's is self lubricating to eliminate wear and tear and corrosion. The MCB's components being light in weight have low inertia thereby ensuring snap make and break. The reliability and ruggedness of the operating mechanism is thus maintained.

ARC EXTINGUISHING CHAMBER: MCB consists of a specially designed 12 plates arc chamber for achieving quicker extinguishing of the Arc generated during short circuit up to 10000 Amps.

CONTACTS: Contacts are made of silver plating. This provides definite advantages to MCB. such as low contact resistance reduced voltage drop and reduction in power loss.

MOUNTING ARRANGEMENT: MCB's can be installed on Standard (35mm) DIN Bars by a simple snap action.

TERMINAL: 16mm2 [box type terminal]

MECHANICAL INTERLOCKING OF MULTIPOLE MCB's: The tripping mechanism of all multipole MCB's is connected internally. This ensures simultaneous tripping of all poles even if the fault occurs in any one of the phases thus preventing single phasing.

## MCB'S







#### MCB ISOLATORS

Nos. of Poles SP. DP. TP & FP Rated Voltage : 240 / 415V AC 50Hz Current Rating: 40A, 63A, 100 Amp.

#### MCB CHANGEOVER

No. of Poles DP & FP

Rated Voltage : 240 / 415V AC 50 Hz Current Rating: 25 Amp. & 40 Amp.



#### BENTEX-Linger TINY TRIP SWITCHES

TYPE: B-16 / B-20 (240V-50z)

Provides additional protection against earth fault thereby giving safety / protection against fire, energy wasting etc.

Due to earth leakage

#### BENTEX-Linger [MCB+ELCB]

Miniature Circuit Breaker + Earth Leakage Circuit Breaker As per standard : IS12640 / 2001

MCB+ELCB Provides additional protection against earth fault thereby giving safety / protection against fire, energy wasting etc. due to earth leakage



#### SALIENT FEATURE

- 1) High sensitivity (30mA) earth Leakage Protection.
- Easy Snap on DIN Rail Mounting
- Available in 2 / 4 pole

#### Technical Specification of MCB+ELCB

Current Rating : 16A, 25A, 32A, 40A & 63A : 30mA, 100mA, 300mA Rated Tripping Current Rated Voltage : Ac 240v for 2 poles, 415v

for 4 poles

Tripping time in earth : Less than 50ms

fault condition

Frequency : 50 Hz





# ELCB / RCCB , distribution board

# EARTH LEAKAGE CIRCUIT BREAKER / RESIDUAL CURRENT CIRCUIT BREAKER

As per standard : IS 12640/2000

Rated Voltage : AC 240v (2pole), 415v (4pole)
Rated Current : 16A, 25A, 32A, 40A, 63A
Leakage Current : 30mA, 100mA, 300mA.

Frequency : 50Hz

Tripping Time : Less than 50 m.sec.

#### Note:

A test button is incorporated in each MCB + ELCB & RCCB/ELCB to enable the electrical and mechanical operation of the device to be checked. It is advised that MCB + ELCB & RCCB is tested periodically

#### MCB + ELCB / RCCB /ELCB PROTECTS

- 1. AGAINST INDIRECT HUMAN CONTACT
- 2. AGAINST DIRECT HUMAN CONTACT.
- 3. EARTH FAULTS DUE TO CORROSION
- 4. PROTECTION AGAINST FIRE DUE TO ELECTRICAL FAULTS

#### DISTRIBUTION BOARD

TYPE: BS (SPN FOR SINGLE PHASE SUPPLY)

SPN 4way	- 4 nos. MCBs
SPN Bway	- 6 nos. MCBs
SPN Bway	- 8 nos. MCBs
SPN 12way	-12 nos. MCBs
SPN 16way	-16 nos. MCBs

Type: BT (TPN for three phase supply)

TPN 4way	- 4 nos. MCBs (Each Phase)
TPN Bway	- 6 nos. MCBs (Each Phase)
TPN Bway	- 8 nos. MCBs (Each Phase)
TPN 12way	-12 nos. MCBs (Each Phase)









# Plug & socket / Distribution board

117.5

117.5



## BENTEX-Linger SKN BLP

(PLASTIC ENCLOSURE)								
TPLASTIC ENGLUSURED	roi a		_	-	_	_	•	`
	1014	_		$-\mathbf{n}$			-	-

- 1 or 2 way - 1 pole & 2 pole - 3 or 4 wey - 3 pole & 4 pole (SHEET STEEL ENCLOSURE)

- 1 or 2 way - 1 pole &. 2 pole

- 3 or 4 way - 3 pole & 4 pole

L H W e 156 63.5 67 e 154.5 64.5 110.5

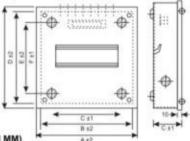
62

62

43.5

88.5





#### Technical specification (Dimensions in mm)

/AII	DIMENSIONS	IN BARAS
MLL	DIMENSIONS	THE INTENT

Type Ways	Ways	Surface Mounting							
		А	В	С	D	E	F	G	
BS-4	SPN 4	155	147	96	192	185	120	63	
8S-B	SPN 8	195	185	138	192	185	120	63	
BS-12	SPN 12	270	262	214	192	185	120	63	
BS-18	SPN 16	345	338	290	192	185	120	63	
BT-4	TPN 4	270	258	165	388	380	292	97	
BT-6	TPN 8	350	335	237	388	380	292	97	
BT-8	TPN 8	422	410	314	388	380	292	97	
BT-12	TPN 12	490	485	385	388	380	292	97	

#### PLUG & SOCKET DISTRIBUTION BOARD

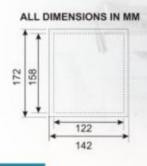
Type : BPSD/SP & BPSD/TP

Material : Steel Sheet Fabrication

Single Phase : 10A & 20 Amp. (SP)

Three Phase : 20 Amp. & 30 Amp. (TP)

Note : - Specially used for Air Conditioner





#### METAL CLAD PLUG & SOCKET

Range

10 Amp. &. 20 Amp. (SP) 20 Amp. &. 30 Amp. (TP)

#### PLUGS & SOCKETS

Cat. Ref.	Description
240 Volts,	2 Pole and Scrapping Earth
SP 10	10 Amps Plug
SS 10	10 Amps Socket with Cap & Chain
SP 20	20 Amps Plug
SS 20	20 Amps Socket with Cap & Chain
440 VOLTS,	3 POLE AND SCRAPPING EARTH
TP20	20 Amps Plug
TS20	20 Amps Socket with Cap & Chain
TP32	32 Amps Plug
TS32	32 Amps Socket with Cap & Chain



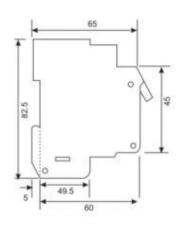


"C" series MCB is used for all Motor Applications

## **Load Selector Chart**

For household application

Appliance	Capacity watt (Load) (240 VAC (ph)	Current Rating of MCB	Type of MCB
Air Conditioner	1.0 tonnes	16A	"C" series
	1.5 tannes	25A	"C" series
	2.0 tonnes	32A	"C" series
Refrigerator	165 litres	2A	"C" series
36	350 litres	4A	"C" series
Oven cum Griller	4500W	25A	"B" series
	1750W	10A	"B" series
Oven only	750W	6A	"B" series
Hot plate only	2000W	10A	"B" series
Room Heater	1000W	6A	"B" series
	2000W	10A	"B" series
Washing Machine	300W	4A	*C* series
Washing Machine			
(With heater)	1300W	BA	"C" series
Water Heater			
[Storage/Instant]	1000W	6A	"B" series
	2000W	10A	"B" series
	6000W	32A	"B" series
Electric Iron	750W	6A	"B" series
	1250W	BA	*B* series
Auto Toaster (2 Sli	ce) 1200W	6A	*B* series
	1500W	10A	"B" series



Motor	KW	MCB Rating	
		Star Delta	DOL
1.0	0.75	(a)	2A
1.5	1.10		AE
2.0	1.50	.+:	4A
3.0	2.25		- 6A
5.0	3.75	10A	10A
6.0	4.50	10A	10A
7.5	5.50	16A	16A
10.0	7.50	16A	16A
12.5	9.30	20A	20A
15.0	11.30	25A	25A
17.5	13.00	25A	25A
20.0	15.00	32A	40A
25.0	18.50	40A	50A
30.0	22.50	50A	50A
35.0	26.00	63A	63A



#### MOULDED CASE CIRCUIT BREAKERS

BENTEX-Linger Moulded Case Circuit Breakers are designed for circuit protection of low voltage distribution systems. They are suitable for applications as main breakers and for protection of branch and feeder circuits and connected equipment. These MCCBs provide overload & short circuit protection for all circuit elements such as cables, motors, starters and any other load, they are designed for use in switch boards control centers, panel boards, combination starters & separate individual enclosures. In these various enclosures, they suit the requirements of lighting distribution and other power circuits also.

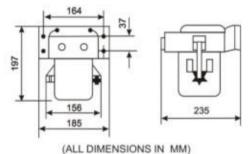
#### TECHNICAL SPECIFICATIONS

Frame		BM-100	BM-250	BM-400	BM-600	BM-800
Pole		3 4	3 4	3 4	3 4	3 4
Rated curr	ent (Amps.)	ľ				
Ambient Te	mp					
40°C for general use		15,20,30,40	125,150,175	250,300	500,600	700,800
40°C for m	arine use	50, 60, 75, 100	200, 225, 250	350, 400 V		
Related Ins	sulation					
Voltage UL (Volts) AC		600	600	600	600	600
	DC	250	250	250	250	250
Rated	AC 550V	7.5	10	18	22	22
Interruptin	9	334.53				7,5-0,5
Capacity	AC 460 V	10	15	22	30	30
(KA)	AC 220 V	25	25	35	42	42
	DC 250 V	10	10	10	10	10

## Motor Starters





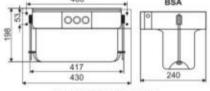


## DIRECT- ON - LINE PUSH BUTTON OIL IMMERSED MOTOR STARTER (5 TO 20 HP) TYPE: BOI CI/BOI(S)

Starter is ruggedly constructed, totally enclosed and fixed in cast iron sheet metal frame for wall mounting. Conduit holes are provided for cable entry from top and bottom. All incoming and outgoing terminals, conduit entries are easily accessible from top of the starter. An easily removable cover made of sheet metal completely encloses the overload relays and connection terminals to ensure protection against dust and weather. There is provision for fitting pedestal Ammeter on the top of the starter. Oil tank, made of deep drawn sheet and fixed with the lower part of the cast ironsheet matal frame, can be easily removed by loosening round nuts from the left and right sides. Parts are easily accessible for cleaning, setting and replacement.

400 V	OLTS	3 PHASE
TYPE	H.P.	R.RANGE
801	5.0	6.0 - 10A
BOI	7.5	9.0 - 14A
BOI	10.0	13.0 - 21A
BOI	15.0	20.0 - 32A
BOI	20.0	25.0 - 35A





(ALL DIMENSIONS IN MM)

TEC	TECHNICAL SPECIFICATION		
TYPE	H.P./KW	R.RANGE	
BSA	7.5/5.5	6.0 - 10A	
BSA	10.0/7.5	6.0 - 10A	
BSA	12.5/9.3	9.0 - 14A	
BSA	15.0/11	9.0 - 14A	
BSA	20.0/15	13.0 - 21A	
BSA	25.0/18.6	20.0 - 32A	
BSA	30.0/22.5	20.0 - 32A	
BSA	35.0/26.1	20.0 -32A	
BSA	40.0/30.0	30.0 -42A	
BSA	50.0/37.3	38.0 ~48A	
BSA	60.0/44.7	42.0 ~54A	

## SEMIAUTOMATIC STAR DELTA OIL IMMERSED MOTOR STARTER (7.5 TO 40 HP) TYPE: BSA CI/BSA(S)

Starter is ruggedly constructed, totally enclosed and fixed in cast ironsheet metal frame for wall mounting. An easily removable cover made of steel sheet completely encloses the overload relay and connection terminals to ensure protection from dust and weather. There is provision for fitting pedestal Ammeter on the top of the starter. Oil tank made of deep drawn sheet is fixed with the lower part of the cast ironsheet metal frame and can be easily removed by loosening nuts on the left and right hand sides. The enclosure is dust and Vermin Proof.

Press the start knob (Green) to run the motor in 'STAR' position. When the motor has attained normal speed (ie 80 to 90%), press the run knob (Yellow) to bring the motor to 'DELTA' position. Press Stop knob (Red) to stop the motor. The contactor assembly is comprised of three contactors :- one for MAIN, one for STAR and one for DELTA circuit with interlocking arrangements.

All the three contactors are dipped in an oil chamber having double break robust copper contacts. The coil is machine wound, taped, vacuum impregnated and baked to suit tropical conditions.

Thermal, bimetallic overload relay, triple pole accurately calibrated to provide protection against overloads.



### Launches the highly advanced technology KING Motor Starter leaving all others much behind



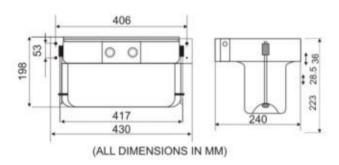
TEC	HNICAL SPECI	FICATION
TYPE	H.P./KW	R.RANGE
FAB	7.5/5.5	6.0 - 10A
FAB	10.0/7.5	6.0 ~ 10A
FAB	12.5/9.3	9.0 - 14A
FAB	15.0/11	9.0 ~ 14A
FAB	20.0/15	13.0 - 21A
FAB	25.0/18.6	20.0 - 32A
FAB	30.0/22.5	20.0 - 32A
FAB	35.0/26.1	20.0 - 32A
FAB	40.0/30.0	30.0 - 42A
FAB	50.0/37.3	38.0 -48A
FAB	60.0/44.7	42.0 -54A

#### Use it to find the difference....

#### FULLY AUTOMATIC STAR DELTA OIL IMMERSED MOTOR STARTER (7.5 TO 40 HP) TYPE: FAB CI/FAB(S)

Press the start knob to run the motor in 'STAR' position. It will automatically change over to 'DELTA' by means of a time lag relay (timer) which is mounted (inside cover) at the right hand side top of the starter.

The relay (timer) is adjustable within the range 3-12 seconds or 5-20 seconds marked as MIN-MAX. Rotate the time lag relay clockwise to decrease and anti-clockwise to increase the time delay to check the starter.





## SEMI AUTOMATIC KING (K-SERIES) OIL IMMERSED STAR DELTA MOTOR STARTER (7.5 TO 35 HP) TYPE: BSA-K

Starter is ruggedly constructed, totally enclosed and fixed in sheet metal frame for wall mounting. An easily removable cover made of steel sheet completely encloses the overload relay and connection terminals to ensure protectionfrom dust and weather. Oil tank made of deep drawn sheet is fixed with the lower part of the sheet metal frame and can be easily removed by loosening nuts on the left and right hand sides. The enclosure is dust and Vermin Proof Press the start knob (Green) to run the motor in 'STAR' position. When the motor has attained normal speed (ie 80 to 90%), press the run knob (Yellow) to bring the motor to 'DELTA' position. Press Stop knob (Red) to stop the motor. The contactor assembly is comprised of three contactors :- one for MAIN, one for STAR and one for DELTA circuit with interlocking arrangements All the three contactors are dipped in an oil chamber having double break robust copper contacts. The coil is machine wound, taped, vacuum impregnated and baked to suit tropical conditions. Thermal, bimetallic overload relay, triple pole accurately calibrated to provide protection against overloads.



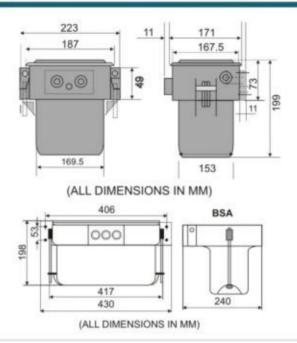
#### EXTRA FEATURES

- Extra long life contact made of high electrical conductivity copper.
- 2. Accurate tripping against over load.
- Low voltage design coil used i.e. 180V to 400V.
- Easy repairing / replacement of knobs, kit-sets, coils & others.
- Less temperature rise because of use of good conductive material

## Motor starters



TEC	HNICAL SPECII	FICATION
TYPE	H.P./KW	R.RANGE
BSA K	7.5/5.5	6.0 ~ 10A
BSA K	10.0/7.5	6.0 ~ 10A
BSA K	12.5/9.3	9.0 ~ 144
BSA K	15.0/11	9.0 ~ 144
BSA K	20.0/15	13.0 ~ 214
BSA K	25.0/18.6	20.0 ~ 324
BSA K	30.0/22.5	20.0 - 324
BSA K	35.0/26.1	20.0 ~32A



## DIRECT- ON - LINE PUSH BUTTON OIL KING (K-SERIES) OIL IMMERSED MOTOR STARTER (5 TO 20 HP) TYPE: BOI-K

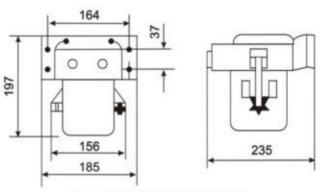
Starter is ruggedly constructed, totally enclosed and fixed in sheet metal frame for wall mounting. Conduit holes are provided for cable entry from top and bottom. All incoming and outgoing terminals, conduit entries are easily accessible from top of the starter. An easily removable cover made of sheet metal completely encloses the overload relays and connection terminals to ensure protection against dust and weather. Oil tank, made of deep drawn sheet and fixed with the lower part of the sheet matal frame, can be easily removed by loosening round nuts from the left and right sides. Parts are easily accessible for cleaning, setting and replacement.

#### EXTRA FEATURES

- Extra long life contact made of high electrical conductivity copper.
- 2. Accurate tripping against over load.
- 3. Low voltage design coil used i.e. 180V to 400V.
- Easy repairing / replacement of knobs, kit-sets, coils & others.
- Less temperature rise because of use of good conductive material

	TECHNICAL	SPECIFICATION
400	VOLTS	3 PHASE
TYPE	H.P.	R.RANGE
BOI K	5.0	6.0 ~ 10A
BOI K	7.5	9.0 ~ 14A
BOI K	10.0	13.0 ~ 21A
BOI K	15.0	20.0 ~ 32A
BOI K	20.0	25.0 ~ 35A





(ALL DIMENSIONS IN MM)



## **Motor starters**

#### Use it to find the difference....



- 1. Extra long life contact made of high electrical conductivity copper.
- 2. Accurate tripping against over load.
- 3. Low voltage design coil used i.e. 180V to 400V.
- 4. Easy repairing / replacement of knobs, kit-sets, coils & others.
- 5. Less temperature rise because of use of good conductive material

#### Launches the highly advanced technology KING Motor Starter leaving all others much behind



#### **FULLY AUTOMATIC OIL KING (K-SERIES) STAR DELTA** OILIMMERSED MOTOR STARTER

(7.5TO 40 HP) TYPE: FAB K

Press the start knob to run the motor in 'STAR' position. It will automatically change over to 'DELTA' by means of a time lag relay (timer) which is mounted (inside cover) at the right hand side top of the starter.

The relay (timer) is adjustable within the range marked as MIN-MAX. Rotate the time lag relay clockwise to decrease and anti-clockwise to increase the time delay to check the starter.

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TECH	HNICAL SPECIF	ICATION	
TYPE	H.P./KW	R.RANC	SE
FAB K	7.5/5.5	6.0 ~ 1	AC
FAB K	10.0/7.5	6.0 ~ 1	OA
FAB K	12.5/9.3	9.0 ~ 1	4A
FAB K	15.0/11	9.0 ~ 1	4A
FAB K	20.0/15	13.0 ~ 2	1A
FAB K	25.0/18.6	20.0 ~ 3	2A
FAB K	30.0/22.5	20.0 ~ 3	2A
FAB K	35.0/26.1	20.0 ~ 3	2A

#### DIRECT ON LINE PUSH BUTTON OIL IMMERSED MOTOR STARTER (WITH DASH POT RELAY) (5 TO 20 HP) TYPE: BSOI(S)

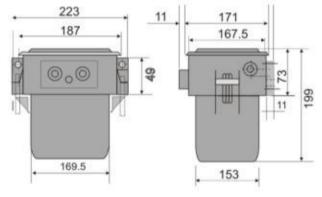
Motor Starter is ruggedly constructed, totally enclosed and fixed in cast iron sheet metal frame for wall mounting. Conduit holes are provided for cable entry from top and bottom. All incoming and outgoing terminals, conduit entries are easily accessible from top of the starter. An easily removable cover made of sheet metal completely encloses the overload relay and connection terminals to ensure protection from dust and weather. There is provision for fitting pedestal Ammeter on the top of the starter.

Oil tank made of deep drawn sheet and fixed with the lower part of the cast iron sheet metal frame. The tank can be easily removed by loosening round nuts from the left and right hand sides. Parts are easily accessible for cleaning, setting and replacement.



TE	CHNICAL SP	ECIFICATION
400 VOLT TYPE	S H.P.	3 PHASE RELAY RANGE
8801	5	6-10A
BSOI	7.5	9-14A
BSOI	10	13-21A
BSOI	15	20-32A
BSOI	20	20-32A





(ALL DIMENSIONS IN MM)



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Da	mage	the	Starte	"
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Type of Starter	H.P.	Recommended Oil
BOI, BSOI, BCM, SOI, SCM	Upto 20 H.P.	1.5 Lts.
BSA, FAB, BSAC, FABC, BMD	Upto 35 H.P.	3 Ltrs.
BSD	UPTO 60 H.P.	Bitts.
BAT	Upto 60 H.P.	24 Ltrs.
BATFA	Upto 60 H.P.	10 Ltrs.
SSD, SSD-DX, SSD-S, DX, SSD-THERMAL	Upto 40/ 200 H.P	B/11 Ltrs
SAT	Upto 40/60/ 100/200 H.P.	47/63/ 68/83/Lts.
SOCB-N	Upto 200 AM	P. 5Ltrs.
SOC8-D	Upto 400/600 800/1250 AM	
SOSR SOSR-HO	Upto 150/200 250/350 H.P.	

#### MOTOR STARTER OIL

The pioneer and largest manufacturer of Oil Immersed Motor Starters in India introduces specially formulated W Oil for longer life and safe operation of see make Oil for Oil Immersed Motor Starters.

#### FEATURES OF SKN OIL :

- · Dust and Moisture Proof.
- · Provides free movement to starter
- · Increases the life of contacts.
- · Double filtered and freezing free.
- · Reduces arc between contacts.
- · Controls the rise in temperature
- Use of SION Oil enhances the warranty period of SION Oil Immersed Motor Starters.

#### PRECAUTIONS:

- · Before pouring, clean the oil tank with dry cloth.
- · Don't heat or boil
- · Fill the oil up to the level mark.
- · Fill the oil up to the level mark.
- · Don't use/mix with already used oil.
- · For longer life change the oil after every 8 months.
- · Check Hologram Sticker for Genuine Oil.

#### WARNING:

Never Run Oil Immersed Starter Without OIL





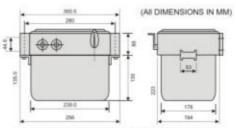
## OIL IMMERSED MANUALLY OPERATED STAR - DELTA MOTOR STARTER (7.5 TO 40 HP) TYPE: BMD

Starter is ruggedly constructed, totally enclosed and fixed in cast iron frame for wall mounting. An easily removable cover, made of sheet steel completely encloses the overload relay and connection terminals to ensure protection from dust and weather. Oil tank made of deep drawn sheet is fixed with the lower part of the cast iron frame and can be easily removed.

#### **OPERATION**

Press the START (Green) Knob with front handle at 'STAR' Position. Wait till motor picks up normal speed then turn front handle to DELTA position Press Red knob to stop the motor.

TYPE	H.P.	R RANGE
BMD	7.5	6.0 - 10A
BMD	10.0	6.0 - 10A
BMD	12.5	9.0 ~ 14A
BMD	15.0	9.0 ~ 14A
BMD	20.0	13.0 - 21A
DMB	25.0	20.0 - 32A
BMD	30.0	20.0 - 32A
BMD	35.0	20.0 - 32A
вмп	40.0	30.0 - 42A



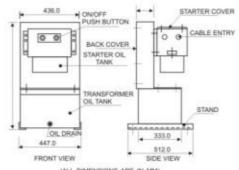
TRANSFORMER OIL REQUIRED for the TANK: 4 litres



#### FULLY AUTOMATIC AUTO TRANSFORMER OIL IMMERSED MOTOR STARTER (10T050HP) TYPE:BATFA/BATFA(P)

Fully Automatic oil immersed auto transformer motor starter is totally enclosed suitable for starting Squiril cage induction motor upto 50 H.P. Contactor assembly is comprised of three contactors - one for main and two for auxiliary. Stater also comprises of NO VOLT coil All the three contactors are dipped in oil chamber having double break robust copper contacts. The coil is machine wound, taped vacuum impregnated and baked to suit tropical conditions.

TECHNICAL SPECIFICATION			
TYPE	H.P./KW	R.RANGE	
BATFA / (P)	10/7.5	14 - 18A	
-do-	15/11	21 - 26A	
-do-	20/15	25 - 35A	
-do-	25/18.6	32 - 43A	
-do-	30/22.5	41 - 52A	
-do-	35/26.1	48 - 57A	
-do-	40/30	53 - 64A	
-da-	45/35	60 - 72A	
-do-	50/37.5	70 - BOA	



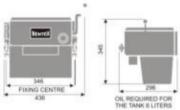
(ALL DIMENSIONS ARE IN MM) GENERAL TOLERANCE ±2.0 MM

## Motor starters





TECHNICAL SPECIFICATIONS :				
TYPE	H.P. Rela	y Range (Amps)		
BSD	10/7.5	12 - 18 A		
BSD	15/11	20 - 26 A		
BSD	20/15	25 - 35 A		
BSD	25/18.6	32 - 42 A		
BSD	30/22.5	40 - 53 A		
BSD	3526.1	45 - 55 A		
BSD	40/30	55 - 65 A		
BSO	45/35	61 - 71 A		
BSD	50/37.5	66 - 76 A		
BSD	60/44.76	78 - 90 A		



(ALL DIMENSION ARE IN MM)

## OIL IMMERSED MANUALLY OPERATED STAR-DELTA MOTOR STARTERS (10 TO 60 HP) TYPE: BSD

Oil Immersed Starters are designed for use on voltages up to 440 V.

#### CONSTRUCTION

The main body and oil tank is made of sheet metal. The enclosure is both moisture and dust proof.

#### OPERATING MECHANISM

Star-Delta starters have a standard 'fixed' handle but can be provided with free handle as well. Free handle is a standard feature with circuit breakers.

#### CONTACTS

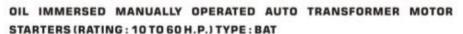
To ensure a trouble free life, these units are provided with heavy type copper contacts. These are made from hard drawn electrolytic copper section: arcing contact and main contact. The arcing contacts make before and break after the main contacts, thus confining burning to the arcing contacts. As such, the main contact scarcely calls for replacement. The arcing contact, however, can be replaced very easily with the removal of a screw.

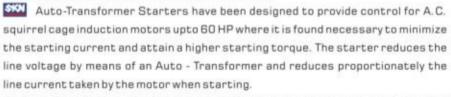
#### OVERLOAD PROTECTION

The overload is of magnetic relay direct acting type with oil dashpot time lag. As a standard. Under voltage protection is provided by a closing type solenoid coil.

#### ACCESSORIES

The starters are generally provided with incoming and outgoing cable entry plates. Cable boxes for paper insulated cables, fully interlocked isolators can also be provided, if required.





An Auto-Transformer Starter is the obvious choice where supply companies' Regulations limit the use of direct-on-line starters for very small motors and starting conditions do not permit the use of star/delta starters.

The Auto-Transformers are provided with tapping for 50%, 65% and 80% of the line voltage to be applied to the motor while starting as a standard practice. If necessary, other percentage tapping according to the require- ment of the customer can be provided instead of the above. The tappings are brought to an easily accessible terminal board. All Auto Transformers leaving the works have the secondary connected to the 65% tapping. If the motor does not develop the correct starting torque the voltage can be altered by changing the tapping on the secondary of the Auto-Transformer.

CONSTRUCTION: The Starter and Auto-Transformer are enclosed in separate totally enclosed dust proof metal-clad cases arranged for floor mounting. As can be seen from the illustration below, the starter is entirely separate from the Auto-Transformer. This arrangement prevents carbonized oil from the starter depositing on the Transformer mounted below, thus eliminating electrical breakdown in the transformer insulation.





**CONTACTS**: To ensure a trouble-free life, these units are provided with hard drawn electrolytic copper section arcing contact and main contact. The arcing contacts make before and break after the main contacts, thus confining burning to the arcing contacts. As such, the main contact scarcely calls for replacement. The arcing contact, however, can be replaced very easily, with the removal of a screw.

**OVERLOAD PROTECTION**: The overload is of magnetic direct acting type with oil dashpot time lag: under voltage protection is provided by closed types solenoid coil.

ACCESSORIES: The starters are generally provided with incoming and outgoing cable entry plates. Cable boxes for paper insulated cables, fully interlocked isolators can also be provided, if required. Parts are easily accessible for cleaning, setting and replacement.

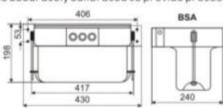


TEC	CHNICAL SPECI	FICATION
TYPE	H.P./KW	R.RANGE
BCSA	7.5/5.5	6.0 - 10A
BCSA	10.0/7.5	B.O - 10A
BCSA	12.5/8.3	9.0 - 14A
BCSA	15.0/11	9.0 - 14A
BCSA	20.0/15	13.0 - 21A
BCSA	25.0/18.6	20.0 - 324
BCSA	30.0/22.5	20.0 - 324
BCSA	35.0/26.1	20.0 -32A
BCSA	40.0/30	30.0 -42A

## SEMI AUTOMATIC STAR DELTA OIL IMMERSED MOTOR STARTER (3TO 40 HP) TYPE: BCSA (S)

Starter is ruggedly constructed, totally enclosed and fixed in cast iron frame for wall mounting. An easily removable cover made of steel sheet completely encloses the overload relay and connection terminals to ensure protection from dust and weather. There is provision for fitting pedestal Ammeter on the top of the starter. Oil tank made of deep drawn sheet is fixed with the lower part of the cast iron frame and can be easily removed by loosening nuts on the left and right hand sides. The enclosure is dust and Vermin Proof.

Press the start knob (Green) to run the motor in 'STAR' position. When the motor has attained normal speed, press the run knob (Yellow) to bring the motor to 'DELTA' position. Press Stop knob (Red) to stop the motor. The contactor assembly is comprised of three contactors: one for MAIN, one for STAR and one for DELTA circuit with interlocking arrange-ments. The starter is conforming to IS:13947 Part 4 sec I 1993. All the three contactors are dipped in an oil chamber having double break robust copper contacts. The coil is machine wound, taped, vacuum impregnated and baked to suit tropical conditions. Thermal, bimetallic overload relay, triple pole accurately calibrated to provide protection against overloads.



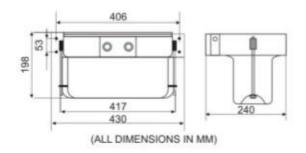
(ALL DIMENSIONS IN MM)



TEC	HNICAL SPECIF	FICATION
TYPE	H.P./KW	R.RANGE
BCFA	7.5/5.5	6.0 - 10A
BCFA	10.0/7.5	6.0 - 10A
BCFA	12.5/9.3	9.0 - 14/
BCFA	15.0/11	9.0 - 144
BCFA	20.0/15	13.0 - 214
BCFA	25.0/18.6	20.0 - 32/
BCFA	30.0/22.5	20.0 - 32/
BCFA	35.0/26.1	20.0 - 32/
BCFA	40.0/30	30.0 - 424

## FULLY AUTOMATIC STAR DELTA OIL IMMERSED MOTOR STARTER (7.5 TO 40 HP) TYPE: BCFA(S)

Press the start knob to run the motor in 'STAR' position. It will automatically change over to 'DELTA' by means of a time lag relay (timer) which is mounted (inside cover) at the right hand side top of the starter. The relay (timer) is adjustable within the range 3-12 seconds or 5-20 seconds marked as MIN-MAX. Rotate the time lag relay clockwise to decrease and anti-clockwise to increase the time delay to check the starter.



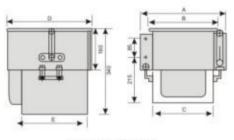
## **Motor starters**





## MANUALLY OPERATED OIL IMMERSED MANUAL STAR-DELTA MOTOR STARTER (10 TO 200 HP) TYPE: SSD/ SSD(DX)/SSD(SDX)

Oil Immersed Star Delta Starter Type: SSD are designed for starting 400/440 Volts 3 Phase 50 Hz. A.C. Squirrel cage Motors upto 150 H.P. Each Starter has salient features of Revival Fixed Self aligning type Finger Contacts easy replicable tips made of 99.9% pure electrolytic hard drawn copper sections duly silver plated to avoid corrosion and pitting ensuring long life. Oil dashpot type of magnetic overload releases are calibrated and are easily adjustable type. The Starters are manually operated Star-Delta wall mounting type with provision for hand tripping by means of a lever provided on side. The starter is enclosed in a fully treated antirust proof sheet metal clad enclosure incorporating correct sequence device ensuring proper sequences of operation so that the starter is first put into the Star position for starting before a quick change over is possible to the Delta position for running.



(ALL DIMENSION IN MM)

TEC	HNIC	AL S	SPEC	IFIC/	ATION	u u
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For Starters (upto 40 H.P.)	400	310	285	290	205	7.5 Ltrs.
For Starters (41to150 H.P)	505	415	380	310	210	11.0 Lts



## OIL IMMERSED MANUALLY OPERATED AUTO TRANSFORMER STARTERS (UPTO 200 HP)

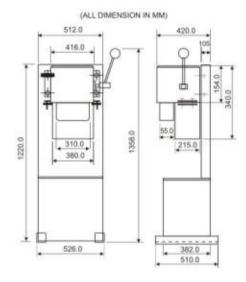
TYPE : SAT

Oil Immersed Auto Transformer Starters type 'SAT' are designed to provide control of squirrel cage A.C. Motors upto to 150 H.P. where it is found necessary to minimize the starting current and attain higher starting torque. The starter reduces the line voltage by means of an Oil immersed transformer and reduces proportionately the line current taken by the motor when starting. The auto transformer starters are ideal to install where Electricity Boards limit the use of Direct on line starters and starting conditions do not permit, the use of Star Delta Starters.

#### SPECIFICATIONS:

The Auto transformer starters are manually operated and are enclosed in a fully treated antirust proof sheet metal enclosures and are floor mounting. The mounting arrangement of the starter and the auto transformer is such that it prevents carbonized oil from the starter depositing it on the transformer mounted below eliminating thereby the electrical breakdowns. The contact of the starters are of self-aligning type with easy replaceable tips made out of 99.9% pure electrolytic hard drawn copper sections, duly silver plated to avoid corrosion and pitting ensuring long life. The starters are provided with correct sequence device to prevent the starter being put direct to the running position with a provision for tripping the starter instantaneously in an emergency. Any other percentage of tappings can also be provided against specific requirements. The tappings are brought to an easy accessible terminal board.





The auto transformers at the time of despatch are connected on the secondary side to the 40% tapping if the motor does not develop the correct starting torque the voltage can be altered by changing the tapping on the secondary of the auto transformer.

**OVERLOAD TRIPS:** Series wound overload trip coils are provided on all three phases and are duly calibrated.

UNDER VOLTAGE COIL ASSEMBLY: The unit is provided with an under voltage Coil assembly for opening the main circuit when the voltage falls to an abnormally low value. If desired for remote tripping a push button may be connected in series with UNDER VOLTAGE coil.

**SINGLE PHASE PREVENTORS**: If desired this can be provided at additional cost. **CABLE**: The Unit has provision for cable entry at the back/left side. A cable sealing box may be fitted if required accordingly.

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H.P.	TYPE	OTY. OF OIL IN LTR.
Upto 41-75	S-0SR/1	90
76-150	S-OSR/1	90
151-200	S-OSR/3	100
201-250	S-05R/4	135
251-300	S-0SR/5	370
301-350	S-OSR/6	370

RANGE (HP)	WT. IN KG. (DRY) APPX.	OIL REQUIRED IN TANK (LTR.) FOR TRANSFORMER	OIL REQUIRED FOR STARTER (LTR.)	TOTAL OIL REQUIRED (LTR.)
20 to 40	80	30	8.5	38.5
41 to 60	115	40	11.5	51.3
61 to 100	130	50	11.5	56.3
101 to 150	150	60	11.5	71.5

## MANUALLY OPERATED OIL IMMERSED FLOOR MOUNTING STATOR-ROTOR STARTER WITH SKN OIL CIRCUIT BREAKER (UP TO 350 HP) TYPE: S-OSR HD

Stator-Rotor Type S-OSR are manually operated floor mounting oil immersed starters. These are made in two parts:

a) Stator Rotor Controller comprising of Oil Circuit Breaker.

b) Rotor Circuit consisting of wire Resistance. The Stator oil circuit breaker and the Rotor circuit are electrically inter-locked. The stator Oil Circuit Breaker is provided with no volt no-close Device.

The high grade resistance wires are wound on best quality ceramic tubes so that there is no possibility of shorting of turns.

Both Stator and Rotor are electrically interlocked such that the stator controller of Oil Circuit Breaker will not be able to close unless all the resistance are in circuit. Secondly if the Rotor resistance is not fully cut off, the stator, controller will trip.

#### OPRATION:

While operating make sure that wheel of the ROTOR is in START position. Then press push Button on the Stator, bring the handle of stator to 'ON' position, keeping the push button pressed. Turn the wheel of Rotor to Start position (Until it stops) and release the push button.

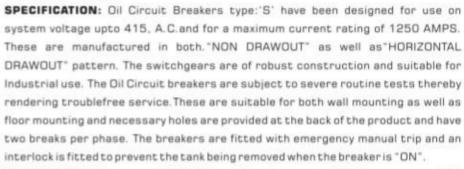
#### NOTE:

While floating your Enquiry or placing your order furnish the following: System Voltage, Frequency, Motor Current, Motor Rating (H.P.) Rotor Volts and Rotor Amps of the Motor.

# SKN - BENTEX G R O U P

## Motor starters





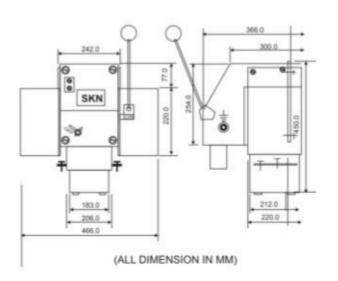
PROTECTIONS: The type, 'S1' Oil Circuit Breakers up to 200 Amps are provided with series wound trip coils calibrated for 100% to 200% with adjustable Oil DashpotTimeLags 0-20 seconds.

Type S2 & S3 Oil Circuit Brakers up to 200 Amps are provided with series wound trip coils calibrated for  $100 \, \%$  to  $200 \, \%$  with adjustable Oil Dashpot

Time Lags 0-20 Seconds. Type S2 & S3 Oil Circuit Breakers are fitted with Trip Coils operated from current transformers and are shunted with time limit fuses, adjustable oil dash pot time lags calibrated 0-20 seconds are provided on the breakers. These are also provided with contacts of V-Bar type and easily removable fixed finger and arcing contacts made out of 99.9 % electrolytic pure copper duly silver plated.



	TECHN	IICAL SPECI	FICATION	
Non Draw Out Type	Capacity in Amps in Kgs.	Oty. of Oil in Ltrs.	Approx. Weight in Kgs.	Breaking capacity at 0.4 KV in MVA
S1	100	5	25	5
S1	200	5	25	5
\$2	300	18	65	5
S2	400	18	65	15
S2	600	20	70	25
S3	800	30	150	25
53	1250	32	160	25







# SINGLE PHASE OIL IMMERSED SUBMERSIBLE PANEL BOI SPP

BOI(S) SP-SP Panel with condensors BOI(S) SP with condensors +O/L Relay



## Oil immersed submersible panels



#### BSA MCCB (S) PANEL (10H.P to 40H.P)

Oil Immersed Semi Automatic Star -Delta Motor Control panel with 96mm SQ. FLASH AMP.& VOLTMeter and MCCB

10H.P.to 15 H.P. 20 H.P. 25,30,35 H.P. 40 H.P.



#### FAB MCCB (S) Panel (10H.P to 40H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make ISI Mark fully automatic submersible pump control unit.)



#### BOI MCCB (S) PANEL (5H.P to 20H.P)

Oil Immersed Direct on line Motor Control Panel with 96mm flash Amp. & Volt meter and MCCB

5 H.P. TO 15 H.P.



#### BSOI (S) MCCB Panel (10H.P to 20H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make ISI Mark semi Automatic Star-delta submersible control unit.)



#### BCSA (S) MCCB Panel (10H.P to 40H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make heavy duty semi automatic star-delta submersible pump control unit.)



#### BCFA (S) MCCB Panel (10H.P to 40H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make heavy duty semi automatic star-delta submersible pump control unit.)

# Submersible pump with KVAR



#### **BCFA (S) Panel**

Oil Immersed Star-Delta Submersible pump panel. (With SKN-Bentex Make heavy duty fully automatic star-delta submersible control unit.)

#### Each panel consists of

- SKN-Bentex make ISI Mark oil immersed submersible control
- · Suitable rating of fuse unit (kitkat)
- · Ampere meter
- · Volt meter
- · Selector switch
- · Connection strip
- · Also space provided for single phasing preventer. (SKN-Bentex make)

#### Oil capacity:

Oil capacity
1.5 Ltr.
3.5 Ltr.
3.5 Ltr.
3.5 Ltr.
2.3 Ltr.

#### MOTOR STARTER OIL

#### A PANEL WITH LONGER DURABILITY



#### BOI (S) Kit Kat PANEL (5H.P to 20H.P)

Oil Immersed Direct on line Motor Control Panel with 96mm flash Amp. & Volt meter and MCCB

5 H.P. TO 15 H.P.



#### BSOI Kit Kat Panel (10H.P to 20H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make ISI Mark SEME Automatic Star-delta submersible control unit.)



#### BCSA (S) Kit Kat Panel (10H.P to 40H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make heavy duty semi automatic star-delta submersible pump control unit.)



#### FAB (S) Kit Kat Panel (10H.P to 40H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make ISI Mark fully automatic submersible pump control unit.)



#### BSA (S) Kit Kat Panel (10H.P to 40H.P.)

Oil Immersed Direct on line Submersible pump panel. (With SKN-Bentex Make heavy duty direct on line submersible control unit with desk pot (Magnetic) Relay.)



#### BCFA (S) Kit Kat Panel (10H.P to 40H.P.)

Oil Immersed STAR-DELTA Submersible pump panel. (With SKN-Bentex Make heavy duty semi automatic star-delta submersible pump control unit.)





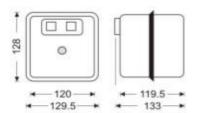
#### DIRECT- ON - LINE AIR BREAK MOTOR STARTER (0.25 TO 10HP) TYPE : BDL

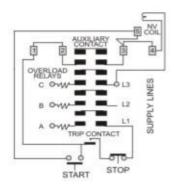
DRECT-ON-LINE AIR BREAK Motor Starter meets the need for high reliability in both Industrial and Agricultural applications. They are designed for DOL switching of AC Motors up to 10 HP (7.5 Kw) at 415V three phase and up to 3 HP (2.23 Kw) 220V single phase and offer comprehensive motor protection against overload, single phasing and unbalanced voltage in accordance with IS:13947 Part 4 sec I 1993. These Starters, having deep drawn sheet steel enclosure suitably treated for tropical conditions, are provided with dust excluding gasket. The push buttons are sturdy and robust. The starter can be mounted with easily removable front cover. For wiring the starter assembly can be easily brought out by loosening screws of lower base plate. Knock out rubber knobs are provided for cable entries at convenient positions. Moving contacts are of double break system for positive interruptions of circuit.

A vacuum impregnated coil and silver cadmium oxide contacts contribute to long mechanical and electrical life 0.5x104 mechanical operations  $0.25x10^6$  electrical operations at 415V.



All Dimensions in mm





TECHNICAL SPECIFI	CATION SINGLE PHASE:
HP/KW	RELAY RANGE (Amps)
0.5/0.32	2.5- 4.DA
0.75/0.55	4.0- 6.5A
1.0/0.75	6.0- 10A
2.0/1.5	9.0- 14A
3.0/2.2	10.0- 18A

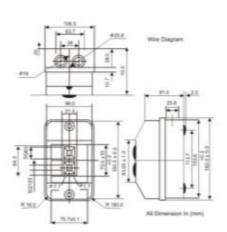
TECHNICAL SPECIFICA	TION THREE PHASE:
HP/KW	RELAY RANGE (Amps)
0.5/0.32	1.0-1.6
1.0/0.75	1.5-2.5
1.5/1.12	2.5-4.0
2.0/1.5	2.5-4.0
3.0/2.2	4.0-6.5
5.0/3.7	6.0-10
7.5/5.5	9.0-14
10.0/7.5	10-18

#### SALIENT FEATURES:

- Every starter tested to a high degree of accuracy and is Calibrated to the strictest tolerances.
- Precision ground laminations for silent operation with each lamination individually rust protected.
- · Vacuum impregnated coil.
- · Silver Cadmium Oxide contacts.
- · Accelerated tripping under single phase conditions.
- . Ambient temperature compensation; 5°C to + 40°C.
- · Simple adjustment of current settings.







TECHNICAL SPECIF	TECHNICAL SPECIFICATION SINGLE PHASE		
SP HP/RW	RELAY RANGE (Amps)		
0.5	2.5-4A		
0.75	4.0-6.5A		
1.0	6.5-11A		
2.0	9.0-14A		
3.0	11-20A		

TECHNICAL SPECIFICATION THREE PHASE:					
SP HP/RW	RELAY RANGE (Amps)				
1.0H.P.	1.5-2.5A				
2.0H.P.	2.5-4.0A				
3.0H.P.	4.0~6.5A				
5.0H.P.	6.5~ 11A				
7.5H.P.	8.0 14A				
10 H.P.	11 - 20A				

## AIR BREAK DIRECT-ON-LINE MINI MOTOR STARTER (0.25 TO 10 HP) TYPE: BAMS

Motor Starter meets the need for high reliability in both industrial and agricultural applications. They are designed for DOL switching of AC Motors upto10 HP (7.5Kw) at 415V, Three phase and upto 3HP (2.23 KW) 220V single phase and offer comprehensive motor protection against overload, single phasing and unbalanced voltage in accordance with IS:13947 Part 4 Sec. 11993. The starter unit comprises of a double break, three pole, on load switch operated by means of a toggle link mechanism. Adjustable bimetal thermal overload trips are included which can be set to follow closely the heating characteristics of the motor. The stop push and overload trips act at the toggle anchor which provides a free handle movement (i.e. the depression of the start push does not operate the switch if the stop push is depressed simultaneously or if the overload trip elements have not reset after tripping.) The fixed contacts are formed of silver cadmium oxide tips. The moving contacts are of Silver Cadmium Oxide and are spring loading. These Starters. having deep drawn sheet steel enclosure suitably treated for tropical conditions, are provided with dust excluding gasket. The push buttons are sturdy and robust. The starter can be mounted with easily removable front cover. Rubber knockouts are provided for cable entries at convenient positions.

#### MOUNTING

The Starter is available for surface or flush mounting. For surface mounting the interior unit is enclosed in dust protecting deep drawn sheet steel case having a removable cover and knock out for 20 mm conduit at top and bottom. The flush mounting version comprises of the interior unit attached to a face plate. The interior unit is recessed into the machine frame.

#### SALIENT FEATURES

- Every starter is tested to a high degree of accuracy and is calibrated to the strictest tolerances.
- · Silver Cadmium Oxide contacts.
- · Accelerated tripping under single phase conditions.
- Ambient temperature compensation :- -5°C to + 40°C
- · Simple adjustments of current settings.
- · Push buttons colour coded and marked with symbols.
- · Start-green'I':Stop-red 'O' (in Type BAMS)





## Motor starters



MANUALLY OPERATED DIRECT ON LINE TINY MOTOR STARTER 0.25 HP TO 3 HP (SINGLE PHASE) 1HP TO 10HP (THREE PHASE) TYPE : BATS

Tiny Push Button Starters are sleek in looks compact in fitting, They combine dependability with economy. This Starter is most suitable for wide voltage fluctuations.

#### APPLICATION

Ideally suited for motor installation e.g. in Machine Tools such as Grinders, Polishers, Lathes, Woodworking Machines, Centrifugal pumps in farms, Compressors, Air Conditioners, Refrigerators, etc.

Tiny Push Button Starter can be used as current limiter for electrical installation with many equipments connected to supply; for switching and Overload protection in domestic, Industrial and commercial complexes. Start black 'I': Stop-red'O'(in type BATS)

TECHNICAL SPECIFICATION THREE PHASE:					
SP HP/RW	RELAY RANGE (Amps)				
1.0H.R	1.5-2.5A				
2.0H.P.	2.5~4.0A				
3.0H.P.	4.0~6.5A				
5.0H.P.	6.5 11A				
7,5H.P	B.0~ 14A				
10 H.R	11 - 20A				

TECHNICAL SPECIF	TECHNICAL SPECIFICATION SINGLE PHASE:					
SP HP/RW	RELAY RANGE (Amps)					
0.5	2.5-4A					
0.75	4.0-6.5A					
1.0	6.5-11A					
2.0	9.0-14A					
3.0	11-20A					



TYPE

SDM

SOM

SDM

SDM

SOM

SOM

SDM

SDM

10.0

12.5

15.0

20.0

25.0

30.0

35.0

R.RANGE

9.0 - 14A

13.0 - 21A

13.0 - 21A

20.0 - 32A

32.0 - 42A

38.0 - 48A

42.0 - 544

25.0 -35A

#### AIR BREAK MANUALLY OPERATED STAR-DELTA MOTOR STARTER (7.5 TO 35 HP) TYPE: SDM CI/SDM(S)

Air Break Manually Operated Star-Delta Motor starter is ruggedly constructed, totally enclosed and is fixed in cast iron sheet metal box for wall mounting. All incoming and outgoing terminals and conduit entries are easily accessible from top and bottom. An easy hinged cover, made of sheet metal completely encloses the system to ensure protection from dust and weather. Each starter conforms to IS: 13947 Part - 4(Sec-1) 1993.

#### INSTALLATION

- Assemble handle, which is packed separately with the Action Rod of the starter.
- · Mount the starter on a vertical plane.
- Open cover and remove the cotton tape from the core. Clean thoroughly and check for any transit damage.
- Check the free movement of Action Rod & Handle.
- · Make electrical connection as per wiring diagram ensuring that the correct size of cables are used and all the connections are tight.
- · Make sure that earthing of the starter is done properly.

CONNECTION Connect starter terminal A1 B1 C1 and A2 B2 C2 to the corresponding motor terminals, Connect Starter terminals L1, L2, L3 to incoming supply lines.

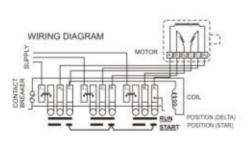
OPERATION First move handle to START (Star) position. When motor picks up 80-90 % speed then turn handle to RUN (Delta) position. Press Red knob to stop the motor.

REVERSE ROTATION Interchange any two incoming supply lines.

OVERLOAD PROTECTION Overload Protection is provided by means of a triple pole thermal relay in all the starters. The tripping is Electrical three overload relays for complete protection against overload and single phasing. No Volt coil to ensure positive action even with fading Voltage

#### SALIENT FEATURES:

- · Every starter is tested to high degree of accuracy and is calibrated to strict tolerances.
- ·Precision Ground laminations for silent operation with each lamination individually rust protected.
- Vacuum impregnated coil.
- · Heavy duty electrolytic copper contacts contribute to long mechanical and electrical
- Accelerated tripping under single phase conditions.
- Ambient temperature compensation 50 Cto + 400 C.
- · Simple adjustment of current settings.















#### AIR BREAK DIRECT-ONLINE starters. Type BSDL are manufactured from 0.25 H.P. to 10 H.P.

These starters are designed to give protection to electric Motors against overloading single phasing and locked rotor conditions of squirrel cage induction motors and power circuits, while operating over widely fluctuating voltage conditions.

#### CONSTRUCTION:

It is available in elegant and compact yet rugged sheet drawn enclosure with ample space for wiring. The starter can be mounted easily by removing front cover that is provided with from the accessible terminals.

The starters are housed in dust and damp protecting enclosures finished in stove enamel paint. The knock outs are provided at top and bottom for the conduit entries.

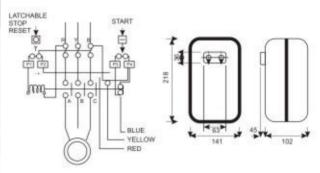
#### **OVERLOAD RELAY:**

Thermal Bimetallic overload relay is provided. After the motor has tripped owing to an overload, the relay has to be reset by operating the STOP (Red) button. The relay will reset only after the bimetal strips have cooled sufficiently.

#### CONTACTOR :

Air Break contactor is available for 16 amps & 25 amps current ratings. Contact system is of the double break type and dynamically engineered to eliminate contact bounce.

MOTOR	RATING H.P.	FOR - BSDL
550 A	440 V	RELAY
1-ph	3-ph	RANGE AMPS
0.25	1.0	1.5 - 2.5
0.5	1.5	2.5 - 4.0
-	2.0	2.5 - 4.0
0.75	2.5	4.0 - 6.5
	3.0	4.0 - 6.5
1.0		6.0 -10
1.5	5.0	6.0 -10
1.5	6.0	6.0 -10
2.0	7.5	9.0 -14
3HP	10	13 - 21
5HP	15	20 - 32



## AIR BREAK DIRECT-ONLINE starters. Type BPDL are manufactured from 10 H.P. to 20 H.P.

These starters are designed to give protection to electric Motors against overloading single phasing and locked rotor conditions of squirrel cage induction motors and power circuits, while operating over widely fluctuating voltage conditions.

#### CONSTRUCTION:

It is available in elegant and compact yet rugged sheet drawn enclosure with ample space for wiring. The starter can be mounted easily by removing front cover that is provided with from the accessible terminals.

The starters are housed in dust and damp protecting enclosures finished in stove enamel paint. The knock outs are provided at top and bottom for the conduit entries.

#### **OVERLOAD RELAY:**

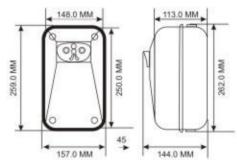
Thermal Bimetallic overload relay is provided. After the motor has tripped owing to an overload, the relay has to be reset by operating the STOP (Red) button. The relay will reset only after the bimetal strips have cooled sufficiently.

#### CONTACTOR:

Air Break contactor is available for 16 amps & 25 amps current ratings. Contact system is of the double break type and dynamically engineered to eliminate contact bounce.

#### TECHNICAL SPECIFICATION

MOTOR	RATING	H.P. FOR - BPDL
TYPE	H.P.	R. RANGE
BPDL	10	13.0-21A
BPDL	15	20.0-32A
BPDL	20	28.0-42A



## AIR BREAK FULLY / SEMI AUTOMATIC STAR DELTA M. STARTER (3 HP TO 25 HP) TYPE: BSDLSA, BSDLFA & BSDLFA (P)

## PUSH BUTTON OPERATED Air Break fully Automatic / Semi Automatic Star Delta Motor Starters.

TYPE: BSDLFA, BSDLFA (P) and BSDLA totally enclosed, suitable for starting the squirrel cage induction motors of 3HP to 25HP, 3 Phase, 50c/s,  $380V (<math>\pm 15\%$ ) AC supply as per IS: 13947 Part 4. Sec. I. 1993.

SPECIFICATIONS: CONTACTOR ASSEMBLY: The contactor assembly is comprised of three contactors:- one for MAIN, one for STAR and one for DELTA circuit with interlocking arrangements. The starter is comprised of no volt coil, timer etc. All the contactors are having double break robust silver cadmium contacts. The coil is machine wound, taped, vacuum impregnated and baked to suit tropical conditions.

#### **OVER CURRENT RELAY**

FOR TYPE BSDLFA / BSDLSA STARTERS: Thermal, bimetallic overload relay, triple pole accurately calibrated to provide protection against overloads.

#### OVER CURRENT RELAY

FOR TYPE BSDLFA (P) STARTERS: Thermal, bimetallic overload relay, triple pole accurately calibrated, differential temperature compensated between -50C to + 400 C to provide positive protection against both overload and single phasing under all operational conditions as per IS: 13947 Part 4 Sec I 1993.

ENCLOSURE: Starter is housed in sheet steel enclosure which is chemically treated to resist corrosion. The enclosure is dust and vermin proof and conforms to IP-52 OF IS: 13947 Part I 1993.

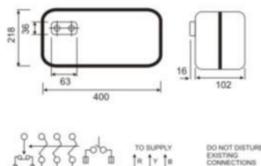
TIMER: Bimetallic timer changes automatically from STAR to DELTA position, adjustable within the range of 4 to 20 seconds, marked as MIN-MAX, and rotate clockwise to decrease and anti-clockwise to increase the time delay.

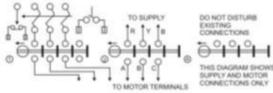
#### **SALIENT FEATURES:**

a)The entire assembly is mounted so that it can be unscrewed and taken out for facilitating easy maintenance and repair i.e. fixed and moving contacts are readily accessible.

b)Start and Stop push buttons with green and red knobs respectively and provided on the front of starter. c)Starter is suitable for operation of squirrel cage induction motors having 1500 / 3000 RPM Synchronous speed. The starter is accompanied with circuit.

RELAY BSDLSA/B	/ RANGE I	
415 V	Motor	3 Phase
Range Relay	Current	H.P.
(Amps.)		
2.5 - 4		3
4 - 6.5	-	5
6 - 10		7.5
6 - 10		10
9 - 15		12.5
9 - 15		15
15 - 24		17.5
15 - 24		50
15 - 24		22.5/25





AIR BREAK AC CONTACTORS
3 PHASE 415 V 50 Hz
(SUITABLE FOR AIR BREAK
SUBMERSIBLE CONTROL PANEL)

THERMAL OVERLOAD RELAYS & AIR BREAK CONTACTORS (BSDL SERIES)

AIR BREAK CONTACTORS BSDL SERIES- 16A/25A/32A







# Submersible control panels

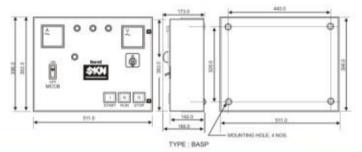


#### TYPE BASP

Air Break Star Delta Semi Automatic Submersible Control Panel with Single Phasing Protection Type: BASP- 415V AC 3 Phase 50 hz

TECHNICAL DETAILS	7.5 TO 40 HP	TYPE	REAL RANGE	H.P.
COIL VOLTAGE	380 V	BASP	6-10AMP.	7.5
OVERLOAD RELAY	MANUALLY RESET	BASP	9-14 AMP	10
PICK UP VOLTAGE	180 TO 230 V	BASP	13-21 AMR	15
DROP OUT VOLTAGE	50 TO 60V	BASP	20-32 AMP	50
MEASUREMENT	AMMETER		7.	
OFFERED	VOLTMETER WITH SELECTOR SWITCH	BASP	25-35 AMP	25
PHASE INDICATING	SUPPLY ON	BASP	25-35 AMP	30
LAMPS	PUMP ON	BASP	25-35 AMP.	35
AUTO PREVENTOR FULL START	10 To15 SEC	BASP	28-42 AMP	40
MCCB	63A TO 100A			







#### TYPE BADL

Air Break Direct On Line Automatic Submersible Control Panel with Single Phasing Protection Type: BADL - 415V AC 3 Phase 50 Hz

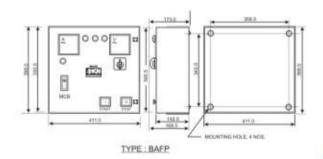
TECHNICAL DETAILS	7.5 TO 20 HP	TYPE	REAL RANGE	H.P
COIL VOLTAGE	380 V	BADL	9-14 AMP.	7.5
OVERLOAD RELAY	MANUALLY RESET	BAOL	13-21 AMP	10
PICK UP VOLTAGE	180 TO 230 V	BADL	20-32 AMP	15
DROP OUT VOLTAGE	50 TO 60V	BADL	25-35 AMP.	50
MEASUREMENT	AMMETER			
OFFERED	VOLTMETER			
	WITH SELECTOR SWITCH			
PHASE INDICATING	SUPPLY ON			
LAMPS	PUMP ON			
AUTO PREVENTOR	10 To 15 SEC			
FULL START				
MCB TP	32A TO 63A			

# TYPE: BADL

#### TYPE FASP

Air Break Fully Automatic Star Delta Submersible Control Panel with Single Phasing Protection Type: FASP-415V AC 3 Phase 50 hz

TECHNICAL DETAILS	7.5 TO 40 HP	TYPE	REAL RANGE	H.P
COIL VOLTAGE	380 V	FASP	6-10 AMP	7.5
OVERLOAD RELAY	MANUALLY RESET	FASP	9-14 AMP	10
PICK UP VOLTAGE	180 TO 230 V	FASP	13-21 AMP.	15
DROP OUT VOLTAGE	50 TO 60V	FASP	20-32 AMP.	20
MEASUREMENT	AMMETER			
OFFERED	VOLTMETER	FASP	25-35 AMP.	25
	WITH SELECTOR SWITCH	FASP	25-35 AMR	30
PHASE INDICATING	SUPPLY ON		0.000	200
LAMPS	PUMP ON	FASP	25-35 AMP	35
AUTO PREVENTOR	10 To 15 SEC	FASP	28-42 AMP	40
FULL START		1 4		
AUTOMATIC STAR DEL	TA WITH TIMER			
MCCB	63A TO 100A			

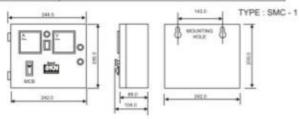




Air Break Single Phase Submersible Panel without

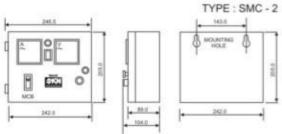
contactor with - MCB- SP Type: SMC-1 AC -90V to 240V For oil field submersible pump

TECHNICAL DETAILS		HP	Running Capacitor	Maximum overload	MRRRs.
COIL VOLTAGE	90V to 240V	0.5	36 MFD	7 AMP.	1225.00
MEASUREMENT	AMMETER	1.0	36 MFD.	10 AMP.	1225.00
OFFERED	VOLT METER WITH SWITCH	1.5	50 MFD	12 AMP	1285.00
MANUALLY SWITCH	ON / OFF	2.0	72 MFD	16 AMP.	1370.00
INDICATING LAMPS	SUPPLY ON				
	PUMP ON				



Air Break Single Phase Without Contactor Submersible Panel with-MCB-SP Type: SMC-2 AC -90V to 240V For oil field submersible pump / water fil

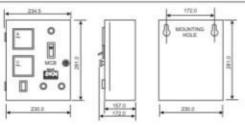
TECHNICAL [	DETAILS	HP	Aunning Capacitor	Starting Capacitor	Maximum overload	MRPRs.
COIL VOLTAGE	90V to 240V	0.5	36 MFD	120/150 MFD	7. AMP.	1880.00
MEASUREMENT	AMMETER	1.0	36 MFD.	150/200 MFD.	10 AMP	1750.00
OFFERED	VOLT METER WITH SWITCH	1.5	50 MFD	150/200 MFD	12 AMP	1900.00
MANUALLY SWITCH	ON / OFF	2.0	72 MFD	200/250 MFD	16 AMP	1950.00
INDICATING LAMPS	SUPPLY ON					Recessorian Control
	PUMP ON	1				



Air Break Single Phase With Contactor Submersible Panel with-MCB-SP Type: SMC-3 AC -90V to 240V For water field submersible pump

TYPE: SMC - 3

TECHNICAL D	DETAILS	HР	Aunning Capacitor	Starting Capacitor	Maximum overload	MRPRs
COIL VOLTAGE	90V to 240V	1.0	50 MFD	120/150 MFD	10 AMP	2400.00
MEASUREMENT	AMMETER	1.5	BO MFD.	150/200 MFD.	12 AMP.	2550.00
OFFERED	VOLT METERWITH SWITCH	2.0	72 MFD	200/250 MFD	16 AMP.	2925.00
MANUALLY SWITCH	ON	3.0	105 MFD	250/300 MFD	27 AMP.	3300.00
INDICATING LAMPS SU	SUPPLY ON		***************************************		***************************************	
	PUMP ON	1				



## Type: SMC Single Phase Panel

Air Break for Submersible Pump Panel.

NOTE: - ALL DIMENSIONS ARE IN M.MGENERAL TOLERANCE + 2.0 M.M.









# Main Switch / Change over Switch / BUS BAR / HRC fuse switch



#### PORCILIEN KIT-KAT

HRC & Rewireable Kit Kat set 32A to 320A (without fuse) (HRC KIT KAT 63A & 100A+ Rewireable KIT KAT 32A to 320A



#### HRC FUSE SWITCH UNIT

Double break combination fuse switch Unit for HRC fuse (without HRC fuse) TPN, side handled operated with sheet Metal enclosure

Type BFS,(conforming to is:13974 (part-iii) 1993, IS/IEC 60947 part 3





#### CHANGEOVER SWITCH (OFF LOAD) I-O-II

DESCRIPTION

Range Execution Rated Voltage 415V AC

Rated insulation voltage Utilization Category

Conforms to

: 100A-1000A

660V

AC-22A IS - 13947 (PT-3)

:1993 IEC: 947-3



#### **BUS BAR**

4 bar Heavy Duty

DESCRIPTION

Range

Execution Rated Voltage

Rated insulation voltage Utilization Category

Conforms to

: 63A-200A : FP

415V AC

: 660V AC-22A : IS - 13947 ( PT-3)

1993 IEC: 947-3

#### **REWIRABLE MAIN SWITCH**

DESCRIPTION

Range 16A-320A DP/TP & TPN Execution Rated Voltage 240/415V AC

Conforms to

SALIENT FEATURE

Door interlocking facility. High electrical & mechanical endurance On/OFF position flag indicators. Phase separators Provided. Contacts and mechanism in enclosed

660V Rated insulation voltage Utilization Category : AC-22A IS - 13947 (PT-3) :1993 IEC: 947-3 Side Handle operated

housing to avoid ingress of dust. Compact design.





#### CHANGEOVER SWITCH (ON LOAD) I-O-II

DESCRIPTION

Range Execution Rated insulation voltage Utilization Category : 32A-100A DP/FP

240/415V AC 660V

AC-22A : IS - 13947 (PT-3) :1993 IEC : 947-3





#### SALIENT FEATURE

Side Handle operated Door interlocking facility.

High electrical & mechanical endurance.

On/OFF position flag indicators.

Phase separators Provided.

Contacts and mechanism in enclosed

housing to avoid ingress of dust.

Compact design.

Silver / Nickle plated Copper & Brass contacts for high conductivity and longer life.

Quick make and break operation mechanism. Enclosures made of CRCA sheet duly pretreated and powder coated.



# L.t. Control switches / reversing switches

#### L.T. CONTROL SWITCHES 16/25/32 AMP. 415V, 50HZ

REVERSING SWITCHES CAM Type manual switches are suitable for REVERSE - FORWARD Direction Controlling and starting of three phase induction motors. Silver cadmium contacts for 25 Amp to 32 Amp. & Cadmium plated electrolytic copper contacts for 16 Amp are provided for longer life. It has life of over 5 million mechanical operations. These are available in open / enclosed forms. ON-OFF SWITCHES 16/25/32 AMPS.

These switches are suitable for direct-on-line starting & controlling 3 phase induction Motors. Silver cadmium contacts are provided for longer life.

#### SALIENT FEATURES

- . Conform to IS: 4064-1978
- · High Quality Bakelite powder is used.
- An efficient spring mechanism quick make and quick break type which minimises the arcing and hence it is suitable for on load operations.
- · CAM type manual operation.
- · Available in open/ enclosed forms.
- · Life over 5 million mechanical operations.









ON-OFF SWITCH					
•4	A.	1.	CONNECT :		
•5	В•	2.	A.B,C. TO MOTOR		
•6	C.	3•	1,2,3 OR 4,5,6 TO LINE		
<b>↓</b> ON	OFF	ON	75 2.112		



	REVERSING SWITCH					
•4	A+	1.	CONNECT :			
•5	В•	2.	A,B,C, TO MOTOR			
•6	C.	3.	1,2,3 OR 4,5,6 TO LINE			
ON	OFF F	ORWA	→			



	CHANGE OVER SWITCH					
•4	A•	1.	CONNECT :			
•5	В•	2•	A,B,C, TO LOAD 1,2,3 OR GENERATOR 4,5,6 TO LINE			
•6	C.	3•				
4	OFF	->	7,0,0 10 2112			



#### SINGLE PHASING PREVENTOR (VARIOUS KINDS OF PROTECTION)

OVERLOADING caused by unbalan- ced voltage or single phasing due to fuse failure, loose connections or loss of phase from supply itself. Single phasing can be correctly detected only by sensing negative sequence components of voltage or current. These components do not contribute to power but generate motor losses. If these negative sequence components are monitor-

ed and the motor is tripped as soon as they reach the dangerous level, it will save the motor

(IS: 3842) and minimize down time.

UNBALANCED SUPPLY generate doubles frequency currents in motor windings causing overheat- ing. Under voltage is particularly dangerous while starting, which also overloads the motor in conti- nuous running. Thus for safe running of motors special protec- tions; that keep a continuous watch on supply; are essential.REVERSE RUNNING of fans, pumps and certain machines due to wrong connections or reverse phase sequence endanger the motor and consequently the machine. Hence protection against reverse phasing also becomes necessary.

#### **AUTO-SWITCH OPERATION:**

BENTEX-SKM Single Phasing Preventor can be connected as 'Auto-Switch' for automatic operation (ON / OFF) during power failure. As mentioned below in No. 5 give sensing to

7, 8 & 9 before the starter (At incoming). Connect a short-link or Toggle Switch across on-push will enable Bentex Single Phasing Preventor to Work as Auto-Switch.

#### **OUR OTHER TYPE OF MODELS**

BLC - Automatic water level controller (Two point level controller)

BLG - Automatic water level guard (Single point level controller)

BPG - Single phasing preventor with water level guard.

- Interchange 7 & 9 if the starter does not hold.
- · In case of star delta starter connect the unit to main contactor.
- · Relay contacts shown for unit in healthy condition.
- In case of reversible motor connect 2 with 3 before reversing switch.
- · Aux. Supply to be connected as mentioned on the unit.



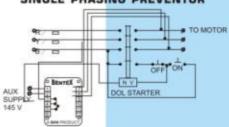
Operation	<ul> <li>Negative sequence voltage operated 415± 10%, 3 phase, 50 Hz</li> </ul>
Auxiliary Voltage :	110V/240V/415VAC ± 10% 50Hz
Temperature	: 5°°C to 60°C
Humidity	: Max. 85%
Power	: Auxiliary Power 3 VA System
Consumption	power 1 VA.
Output contact	: Continuous - 5 Amps at 230 V
Rating	AC and 415VAC, Breaking 1 Amps at 415 VAC at 0.5 P.F
Life expectancy	: 0.5 x 10° operation at 100% rating.
H.V. Test Voltage :	2 KV AC 50 Hz for 1 minute or 2.5 KV AC, 50 Hz for 1 second between mounting plate and any terminal.
Mounting	: Operation unaffected by mounting position
Maximum overall	
Dimensi on	: 140 mm x 85 mm x 105 mm
Mounting	

TECHNICAL SPECIFICATION

#### SINGLE PHASING PREVENTOR

: 130x75mm.

Dimension





#### SINGLE PHASING PREVENTOR

TYPE: BAP (SD-N)
SUIATABLE FOR DIRECT -ON-LINE / FULLY AUTOMATIC &
SEMI AUTOMATIC STAR-DELTA
SUBMERSIBLE CONTROL UNITS



## Ammeter & voltmeter



#### Available.

- Rugged construction.
- Shock proof.
- Accurate measurement.
- Wide operating range.
- Light Weight.
- Flush mount
- Construction.
   ABS body.

**RANGE**: All range

## ELECTRICAL INDICATING INSTRUMENTS AMMETERS & VOLTMETERS

Ammeters & Voltmeters are moving iron type of meters suitable for A.C. as well as D.C. operation.

#### CONSTRUCTION:

All the instruments are manufactured from the best quality material to give satisfactory performance over a large period.

All parts / sub-assemblies are thoroughly inspected at all stages with utmost care. These meters are supplied with white dials and black scaling in order to have easy legibility. The size of stamping is also adequate enough to be read from a reasonable distance. The movement is light in weight and is effectively secured between two sapphire jewel bearings. The precisely ground pivots minimize the friction and sustain occurrence in rigorous field conditions. The effective air damping provides an uniformly controlled torque and brings the indicating pointer to its final deflection position without much oscillation.

All the parts are adequately plated to make the instrument tropical. Instruments are effectively shielded against the effects of external magnetic and electrostatic influences. All the instruments have a zero resetting device in the front.

#### **CALIBRATION:**

The quality control and inspection at every stage of manufacture enable the meters to pass the "Time Test" The quality staff and the expert supervisors calibrate each and every instrument for finest accuracy.

#### RANGE:

These meters are in square flush type or in round flush, projection or pedestal type.











## World Class Capacitors





AC Motor Capacitor

# IS: 13340-93

Power Capacitor

#### OIL CAPACITOR

Power is necessity of life, specially today's India one of the rapidly growing advanced developing country, requires electricity in every aspect of its progress. To fight this shortage of power and to deal with this efficiently and economically. SKN-BENTEX joined hand with leading manufacturer of capacitors which have fully equipped plants with automatic machineries and modern testing equipments, provide a complete and versatile infrastructure for the manufacturing of world class capacitors.

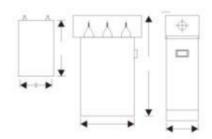
All capacitors are manufactured under the supervision of highly experienced engineers & technicions ensuring manufacturing process and quality and are ISI marked to comply with mandatory regulations of Electricity Boards.

#### **POWER CAPACITORS FEATURES**

- 1. Improve system voltage & subsantially reduce KVA demand.
- 2. Additional load can be installed without investment in capital equipment.
- 3. Reduce in line loses.
- 4. Increase life of electrical equipment with better performance.
- 5. Improve power factor (with elimination penality for low power factor.
- 6. Expenses incurred or recovered within a year.
- 7. Robust design and compact size.
- 8. Minimum power loss.
- 9. Best suited for operation in tropical climates.
- 10. Minimum temperature rise with high thermal stability.
- 11. Suitable for continuous operation.
- Self heating MPP film vaporized adjacent metal layer & regenerates initial insulating condition.
- Vacuum impregnated with non-toxic non pvc impregnated/ flexible epoxy encapsulated for higher level of reliability.
- 14. Explosion proof modules for greater safty.
- 15. Built in & special type of induction coils with every phase to take care of surge & switch striking high voltage
- 16. Substantial saving in power cost and efficient operation if the plants.

## (DRY CAPACITOR)

Capacitor Type	MPP	MPP	POWER - SHUNT
IS: Rated output Tolerance Rated Voltage Rated Frequency	1709-1984 2 MFD to 10 MFD ±5% 400VAC 50 Hz	2993-1998 4.0 MFD to 144 MFD ±5% ±10% 230V /440V /AC 50 Hz	13340-93 1KVAR to 25 KVAR -0+10% -5+10% 415, 440V AC 50 Hz
Ambient & Upper limi Temp Category Phase & Connection	-25 to 70° C single/2T	-25 to 85° C single / 2T	-10/45° C - 55° C 3 Phase / 3T ° Connection D 6T External CONNECTION //
Duty Cycle	Continuous/20 start per hour,each start of more than 3 seconds	Continuous/20 start per hour, each start of more than 3 seconds	Continuous /20 start per hour, each start of more than 3 seconds
Insulation Level Loss angle at RV Discharge device Dielectric Impregnated	>100 mgha S / 2M KV <0.2%] N.A. M.P. P. (SH) EPOXY Encapsulated	>100 mgha S / 2 KV <0.2%] N.A. M.P. P. (SH) EPOXY Encapsulated	>100 mgha S / 2.5 KV <0.25%] Fitted < 50 v with in 60 Sec. M. P. P. (SH) Non toxic oil compound NPCB/ EPOXY Encapsulated



#### **ADVANTAGES**

- Substantial saving in power cost & efficient operation of the plants.
- 2. Expenses incurred are recovered within 1 to 2 years.
- Additional load can be installed without investment in capital equipments.
- Improved power factor with elimination penalty for power factor.
- 5. Negligible maintenance.

#### Note:

Size are subject to change due to design improvement Capacitor Parameters other than that mentioned can be supplied on specific request.



foray into "Future ready Smart Energy Meter" manufacturing in not just targeted towards strengthening its comprehensive and rich portfolio of electrical distribution, Control and switchgear products; rather it is an effort to offer a new range of products and solution for energy metering, monitoring and management leading to a sustainable greener world.

Bentex-SKN is a leading brand in the field of energy meters since last two decades. Our static energy meters are conforming to various national and international quality standards.

At Bentex-SKN, "Total Quality" is the chosen path to excellence. The company has state of the art dust proof and fully air-conditioned production facility at New Delhi, India. Our products are manufactured under stringent quality controlled environment as per ISO: 9001 and ISO: 14001 by British Standards Institute(BSI), UK and RVA Dutch council for accreditation. Bentex offers a wide range of static energy metering solutions to choose from

## Indigenous R&D facility for energy meter











Single Phase Counter Meter:- This meter provides a low cost solution for better energy measurement. Meter provides an effective resolution of 0.005kWh so that even a small amount of energy will not be left unmetered. Meter is designed around a robust electronic circuitry which is a proven solution in field conditions over a decade now. The meter is available in different ranges to suit the varying customer demand.

#### Key features:-

- a) 240V+20% to-50% wide working voltage range for Indian environment.
- b) Single rate Drum register with 5+1 digit display.
- c) 5A, 10A basic current.
- d) 20A, 30A, 40A, 60A maximum current.
- e) Tamper indication LEDs for detection of Earth fault & Reverse power flow.
- f) Compact light weight design.
- g) Reduced environmental burden.



On - Line Assembly Conveyor





Single Phase LCD Meter:- This meter is designed as a wear & tear free device so as to remove the mechanical part from meter. The USP of the meter is easy readability. This meter displays information on a 6-Digit, Large sized LCD display. Meter also consumes less power because of LCD used. Meter is available in different option with tamper proofing features e.g. Line-Load reversal, Earth fault, Neutral Missing.

#### **Key Features:-**

- A) 240V+20% to -50% wide working voltage range for Indian environment.
- B) Single phase, 2 wire network.
- C) 5A, 10A Basic current
- D) 20A, 30A, 40A, 60A maximum current
- E) High resolution HTN LCD display for better contrast & long life.
- F) Compact & rugged light weight design.
- G) High overload current capability.



## Single Phase Multifunction Meter:-

This meter is designed as a versatile device which can replace a set of instrument generally used for measurement of electrical quantities. This meter can measure the true rms voltage, true rms current, Power factor, Load, Maximum demand etc in addition to a high resolution energy. All the instant data is available on MID (Multi Information Display)

and a galvanically isolated optical port as per IEC:1107. Meter also provides detailed information of usage history, tamper details and load profile survey data through it's optical port.

## Key features:-

- a) 240V+20% to -50% wide working voltage range for Indian environment
- b) Class 1 accuracy as per IS:13779.
- c) Available in different configuration as 5-20A, 5-30A, 10-40A and 10-60Amp.
- d) Extended operating temperature range.
- e) Display readable without MAINS power via built-in battery provision.
- f) Magnetic tamer immunity with event logging feature.
- g) Real time clock available.











Three Phase Counter Meter:- Three phase counter based meter is a low cost yet very accurate energy metering device. This device can measure energy usage in very harsh electrical environment. Meter can provide accurate energy metering even under severe tampering conditions viz. single phasing, Neutral missing, phase sequence reversal etc.

## **Key Features:-**

- a) 240V+20% to -50% wide working voltage range for Indian environment
- b) Three phase, 4 wire network.
- c) 5A, 10A Basic current
- d) 20A, 40A, 60A maximum current
- e) Class 1 accuracy as per IS:13779-99
- f) Digital signal processing for better accuracy in tropical climate.

Three Phase LCD Meter: Three phase LCD meter is designed to enhance the working life time of meter. This device has no mechanically moving component inside the meter & thereby providing an excellent life cycle usage. This device also provide an easy readout in the form of 6-digit large sized LCD display.

## Key features:-

- a) 240V+20% to -50% wide working voltage range for Indian environment
- b) Three phase 4 wire networks.
- c) 5A, 10A Basic current
- d) 20A, 40A, 60A maximum current
- e) Class 1 accuracy as per IS:13779-99
- f) Digital signal processing for better accuracy in tropical climate.
- g) Backlit based LCD for easy view.
- h) Micro computer based intelligent design.











Indigenous Circuit Simulation Lab

## Three Phase Multifunction Meter:-

This meter is designed to cater the sophisticated segment which demands for different sets of data of energy consumption. Meter provides instant data on MID (Multi Information Display). Meter can measure & display voltage, current, Power factor, Frequency, Active power, Reactive power, Apparent power phase wise & total in addition to measurement of Active, Apparent & Reactive energy.

Meter also provides energy usage history, Tamper details with snap-shots and load profile survey data via a galvanically isolated optical port in accordance with IEC:1107.

## Key features:-

- a) 240V+20% to -50% wide working voltage range for Indian environment
- b) Class 1 accuracy as per IS: 13779-99.
- c) Available in different configuration as 10-40A and 10-60Amp.
- d) 7-Digit, STN (Super Twisted Nematic) High resolution, Bright backlit display.
- e) Extended operating temperature range.
- F) Display readable without MAINS power via built-in battery provision.
- g) Magnetic tamer immunity with event logging feature.
- h) Real time clock available.
- I) Galvanically isolated RS-485 port available. (Optional)





Production line



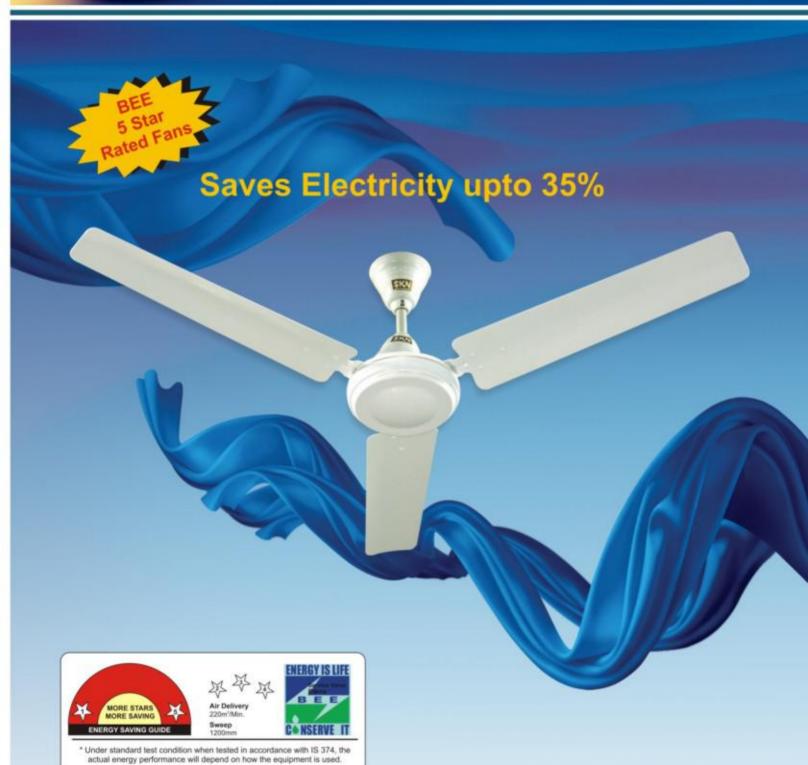
Ultra Sonic Welding Station





## Energy Saving Fans





## Celebrating the 50th year of Establishment Golden Jubilee











When it comes to ceiling fans, SKN has a very broad range. SKN ceiling fans come in a range of amazing colors to match your room ambience. Choose from a range of sweep sizes from 600 to 1400mm - to optimise air delivery & performance in the room depending upon its size.

With our passionate innovation over the years in industrial & domestic market, we are reintroducing our amazing range of fans for the coming years, giving each & every detail the minute attention for you to get that extra bit of speed & cooling feel. With least power consumption through our fans, quality is always a threat for our competitors...



## FEATURES:

- 1) HI-Breeze Performance output.
- 2) Low-loss Electrical Stamping to ensure minimum power consumption.
- 3) Light weight aluminum pressure die-cast perfectly balanced motor body.
- 4) Aerodynamically designed Aluminium blades for maximum silent air flow.
- 5) Powder coated paint provides excellent long lasting finish.



# Energy Saving Fans



silent cooling fresh feeling

## Fans

## SKN-BENTEX G R O U P









DELUX INDUSTRIAL EXHAUST FAN 300mm(12"),380mm(15"),450mm(18"), 1400RPM



VENUS INDUSTRIAL EXHAUST FAN 300mm(12"), 380mm(15"), 450mm(18") 1400RPM



## Self Priming Monoblock Pumps / Submersible pumps



# the FIFTH

## behind water lifting

#### Self Priming Monoblock Pumps SPECIAL FEATURES:

- 1) WIDE RANGE-TO SUIT ALL APPLICATIONS
- 2) HIGH HEADS UPTO 54 METERS
- 3) HIGH DISCHARGE UPTO 4000 LPH
- 4) ANTICORROSIVE & SCRATCH PROOF POWDER COATED PAINT
- 5) WATER DELIVERY AT LOW VOLTAGE- RANGE: 200-240V
- 6) ENERGY-EFFICENT





#### SUBMERSIBLE PUMPSET

Submersible pumps are manufactured to a very high quality standard to provide you excellent service. It is designed for continuous operation, greater efficiency and high working pressure. Easy assembling & dismantling.

#### 4"(100mm) single phase Submersible Pump set

### **TECHNICAL SPECIFICATION**

Particulars: Submersible pumps Power Range 0.5 HP to 3.0 HP

 Supply:
 240V, 50Hz

 Speed:
 2800 rpm

 Discharge Range:
 16 1pm to 400 1pm

Total Head Range: 6 m to 250 m Pipe Size: 32mm, 38mm,50 mm Applications:

Bangalows, Housing complexes High-Rise buildings,

Hotels Industries, Public water supply Minor irrigation,

sprinlers farming, public parks etc.



#### Performance chart

Submersible pumpset: 100mm (4") oil filled & water filled supply voltage: 220V (oil filled), 240V (water filled)

Motor	rating	Stage	Out	tlet	Discharge in LPM								
HP KW		Inch	mm	80	68	60	45	30					
					HEAD IN METER								
1	0.75	8	1.25"	32	24	28	30	35	40				
1	0.75	10	1.25*	32	30	36	39	44	50				
1.5	1.1	12	1.25*	32	36	43	48	53	60				
1.5	1.1	15	1.25"	32	45	54	60	66	75				



ISO:14001:2004 Environmental Management System

## Monoblock Pumps / Electric Motor





















MODEL 1.0 HP SHA TOTAL HEAD 1000t (30mb) MAX DISCHARGE 14000 LPH







## PERFORMANCE CHART

Pump Model		TOTAL HEAD IN METERS														
& Size	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	54
				DISC	CHAR	GE IN	LPH	(LITR	E PER	HOL	JR)					
0.5 HP FANTOM	2220	1920	1680	1470	1140	840	480	360								
0.5 HP REGULAR	2460	2280	2040	1800	1440	1140	1020	720	420							
1.0 HP XTRA-FLOW	2640	2460	2280	2100	1920	1680	1440	1200	960	780	600					
1.0 HP FANTOM	2700	100	2400		2040	1860	1680	1500	1260		900	660	420			
1.0 HP REGULAR	2940	(*)	2880		2700	2520	2340	2160	1920		1500	*	1020	780	480	
1.0 HP SUPER	3180		3120		2760	2580	2400	2220	2040		1620	8	1140	960	780	500



SINGLE PHASE ELECTRIC MOTOR 220V, 50Hz AC, SINGLE PHASE INDUCTION MOTOR

#### **ELECTRIC MOTOR (AC INDUCTION MOTOR)**

These Motors are built with robust construction and are ideally suited to perform in difficult operating condition. The motor are tested against torque and speed in order to ensure superior performance. These product are highly appreciated for their effectual performance and longer life span and final application in agricultural, and various Industrial sectors.

#### **TECHNICAL SPECIFICATION**

Particulars: Power Range Supply: Speed: Insulation:

(Single phase) 0.5 HP to 3.0 HP 240V, 50Hz 1400 rpm A/B

Mounting: Foot mounted Applications: Compressors Material handling equipment Diamond cutting & Conveyors Pumps & Blowers Floor mills Industrial machines



## Automatic Storage & Instant water heater











Electrical Instant Water Heater

Electrical Instant Water Heater Instant water heater is ISI marked Rust proof ABS outer body (shock proof) available in various shapes. Hydrautically lested Inner tank :- Starrings Storel Glass wood insulation to ensure minimum heat loss. Efficient and plasting 3000W In-house misulatured heating element as per IS 4550 Fitted with 3 core five retardant heavy wire. ISI marked fleemostat and thermal culout (optional) Calpacity - 3 Br Color : hvorywhite









Plastic Water Heaters (ABS Body)
Storage water heater is 15t immused
Outer Body: Styliah Rust & shock proof also body
Hydraulically tested inner tank -- copper tank is
staintiess steel (thickness 0.7 mm for high pressure)Pulf insulation for ABS body to ensure minimum heat
loss.
Efficient & long lasting 2000 W in-thouse manufacture
heating element as per 15, 4150 ESI marked thermosts
and thermal culturi with led lamp instication.

Fitted with 3 one fire retardant cable. Capacity :- 6ts, 10ts, 15ts, 25ts. Color :- Ivory and designer body





Drarf: Capacity: 15, 25 Ltr. Steel Body , Powder 5, 5, Tark





Metal Water Heaters (CRC Body)

preserve)

Class woo invalidation to ensure minemain heal loss.

Efficient & long lasting 2000 W in house manufacture

beating element as per 05.159 This maxima different
and thermal cutout with led leng indication.

Fitted with 3 core fee instandant cable.

Capacity- 6th. 10th. 15th. 15th. 25th. 35th & above on





**Domestic Gas Instant** 



- Gas geyser

   Approx. 4 three cheaper to run than electric geyser.

   No electricity required. No risk of shock and power feiture
  Flams failure & water temperature safety device.

   Das & water flow adjustment

   List & Water flow adjustment

   List & Company social-mind device, and fragen device.
- Arti dry-burring protection device, and frozen device Protection devices for steady flow and abnormal pressure Angels, 500 buckets of hot water from one LPG cylinder



**HEAT CONVECTOR** 



SALCON **HEAT CONVECTOR** 

## Water purifiers / Air Coolers



## E-ON Series 7 Stage Water Purifier

For Safe and pure drinking water



#### GALAXY

- No Germ
- No Boiling
- No Running water
   No Electricity

## Without online water filters



#### W-KOOL

- No Germ
- No Boiling
- No Running water
   No Electricity

Snow cool air cooler

# Tey cool air cooler

## **Features**

- ☐ Three side cooling pads.
- ☐ Powerful 40ft.air throw. ☐ Large non corrosive fan.
- ☐ Air throws at body level.
- ☐ Whisper quite performance.
- ☐ Optional Trolly.
- ☐ Easy to open cleaning.
- ☐ Four way air system.
- ☐ Water level indicator. ☐ Ice chamber.
- ☐ Even operates on invertor.



## **Features**

- 10mt. (25ft.) Air throw
- ☐ Mosquito net
- □ Trolley Optional
- ☐ Even operates on inverter
- Four way air defection system
- □ Water level indicator ☐ EFT- E Flow technology



Air delivery (in M3/Hr	590x570x890 40ft.	570x490x560 25 ft.
Submersible pump	Yes	Yes
Cooling Area (Sq. Ft.)	950.00	550.00
Louver Movement	Auto Swing	Auto Swing
Max Voltage (in Watts) Speed Control	230 W.	88 W.
Water Tank Capacity	60 Lts.	45 Lts.
Ice Chamber	Yes	-
Carten Dimensions LxWxH (in MM)	690x580x950	609x558x558
Warranty	12 M	12 M
Runs on Inverter	Yes	Yes
Wheel	Wheel	Trolley

## For complete Protection of your life, Property & Equipments.

## Our other companies:

Bentex Control & Switchgear Co.

B-63-65/3, Naraina Industrial Area Phase-ii, New Delhi (India) Tel: 011-45698100 (30Lines), Fax: 011-25707556 E- mail : bentex3@rediffmail.com Website : www.sknbentex.co.in

Haryana City Gas Distribution Ltd.

Corporate office: A-149, Sushant Lok, Phase-1, Gurgaon-122001 (Haryana) India Tel: 0124-2578701 to 3, Fax: 012-42578704 Website: www.haryanacity gas. com

Natasha Housing & Urban Development Limited E-71, South Extension Part-I, New Delhi-110049 (India) Tel: o11-24644792, 24634449 Fax: 011-24634442

Bentex Tower Pvt. Ltd.

A-6, Naraina Community Centre, Phase-II, New Delhi-110028 (India)





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