

**FHP MOTORS
HVAC MOTORS
FLAMEPROOF MOTORS**

**COMPETENT
SOLUTIONS.
TRUSTWORTHY
PARTNER.**





Range

Lawkim offers a wide range of motors ranging from 90 W to 2250 W (0.125 HP to 3 HP) in single phase and three phase versions suitable for 50 Hz & 60 Hz power supply. We also make HVAC fan motors up to 1000 W output and as per customers' requirement. Also three phase motors in IEC frames from 0.5 HP to 30 HP in 2, 4, 6 pole design.

If you do not find a motor suitable for your application in our standard range, we will design one specially for you. We are well-known for developing customised solutions in a shortest possible time because of our in-house development centre and large manufacturing facility.

Rating

All standard motors are continuously rated for compliance with various performance standards. Special motors for cyclic or short time duties can also be offered for specific applications.

Enclosures

We offer various options of enclosure types such as -

- > Drip Proof (DP)
- > Drip Proof Fan Cooled (DPFC)
- > Totally Enclosed (TE)
- > Totally Enclosed, Fan Cooled (TEFC)
- > Air Over Motors (AOM)

Mountings

Various types of mountings are available

- > Foot > Pad > Flange > Stud
- > Foot-cum-flange > Lug > Resilient mounting base
- > Special mounting if required

HIGH QUALITY
HIGH RELIABILITY
CONSISTENT SUPPLY
LARGE CAPACITY
COMPETITIVE PRICES

FHP MOTORS

Lawkim is a part of USD 4.5 billion Godrej Group. Established in 1961, Lawkim is a leading manufacturer of Hermetic compressor motors, FHP motors and motor components - Stators, Rotors & Laminations.

Lawkim is expert in providing customised solutions and is well-known for a high level of motor manufacturing excellence and design support. Lawkim has a capacity to manufacture 4 million motors every year. Our manufacturing plant near Pune follows modern manufacturing practices and is recognised for ensuring high levels of consistency and safety.

We value long-term relationships which is evident from our association with customers like Cummins, Emerson, Hitachi, Kollmorgen Corporation and Voltas.

Bearings & Lubrication

Sleeve bearing motors are lubricated for lifetime by using Permawick™ Lubrication system. This can give up to 40,000 hours of trouble-free operation without relubrication in normal running conditions. Ball bearing motors use double shielded, deep groove bearings and are lubricated for lifetime. This offers you trouble-free motor life. Special bearings can be offered to suit wide temperature range.

Thermal Overload Protection

For single phase motors, manual or auto-reset thermal overload protector can be provided. It can be temperature/current sensing type and provides excellent protection against motor burnouts.

Centrifugal Gear and Open Circuit Switch

Field proven centrifugal gear is used for trouble-free operation. Open circuit switch has bimetallic contacts consisting of Silver alloy and Copper. These contacts have excellent anti-weld properties and can safely rupture heavy current.

Rotors / Shafts

For special applications, pressure die-cast rotors are steam blued at our plant. This ensures rust prevention and also enhances motor efficiency.

All shafts are made of EN8/C40 steel and ground to 10 micron accuracy. They are treated with anti-rust coating. Stainless steel shafts can also be supplied, if required.

ISO 14001:2004

ISO 9001:2008

OHSAS 18001:2007

Standards

- **B48 & B56 Frame Motors**
Conforming to BS2048 Part I for dimensions and BS5000 Part II / IS996 for performance
- **100s Frame Motors**
Conforming to IS996 for dimensions and BS5000 part II / IS996 for performance

Typical Applications

- Vacuum pumps
- Wet grinders
- Sewing machines
- Machine tools
- Box strapping machines
- Floor polishers
- Pouch making machines
- Printing presses
- Sugar cane crushers
- Jewellery making machines
- Room coolers
- Needle vibrators
- Commercial air-conditioning
- Poultry equipments

Application Engineering

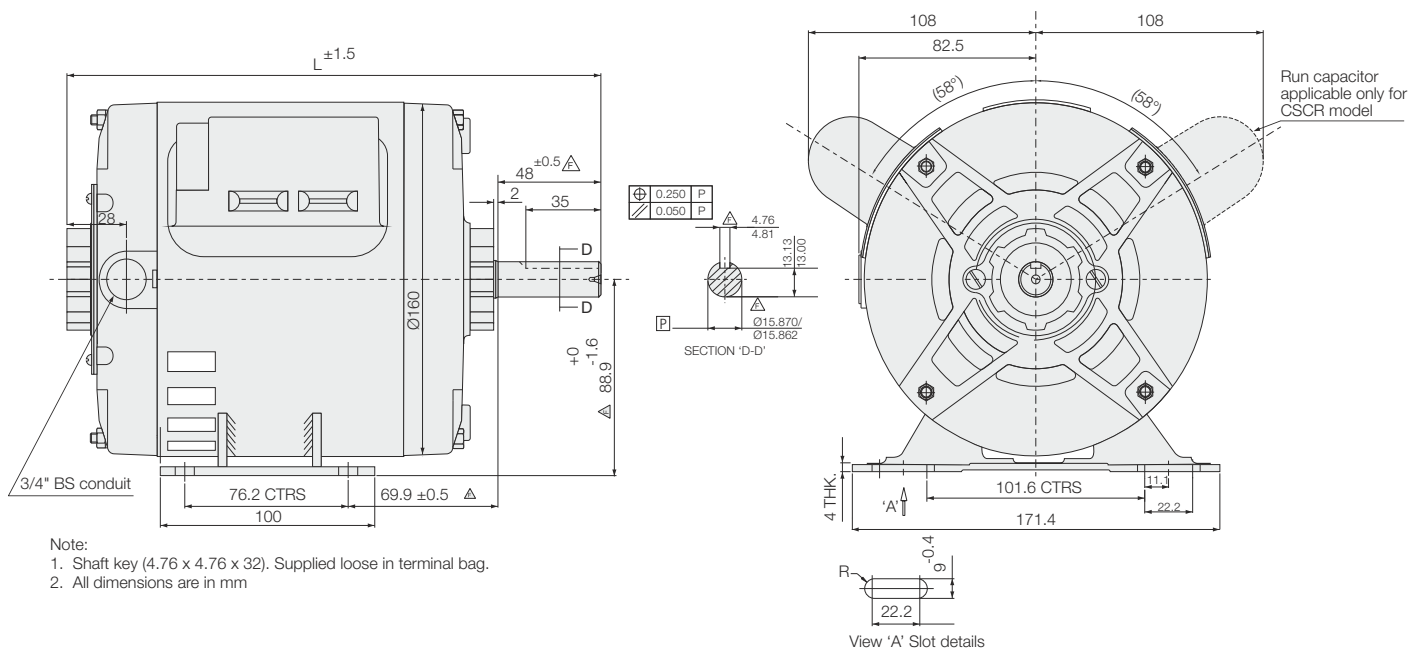
Our expertise lies in developing Special Purpose Motors to suit specific applications. We have developed such types of motors for a large number of customers from different industry verticals.

B56 SERIES MOTOR

MANUFACTURING RANGE							
SERIES	ENCLOSURES	POLES	SINGLE PHASE				THREE PHASE
			SPLIT PHASE	CSIR	CSCR	CSR	
B56	DP TE (AOM) TEFC	2	-	180 - 1100 W	1100 - 1500 W	-	180 - 1100 W
		4	90 - 370 W	90 - 750 W	750 W	180 - 1100 W	180 - 1100 W
		6	90 - 250 W	90 - 250 W	-	180 - 1000 W	120 - 550 W
		8	-	-	-	90 - 180 W	90 - 250 W

(CSIR - Capacitor Start Induction Run, CSCR - Capacitor Start Capacitor Run, CSR - Capacitor Start & Run)

B56 - DRIP PROOF, FOOT MOUNTING



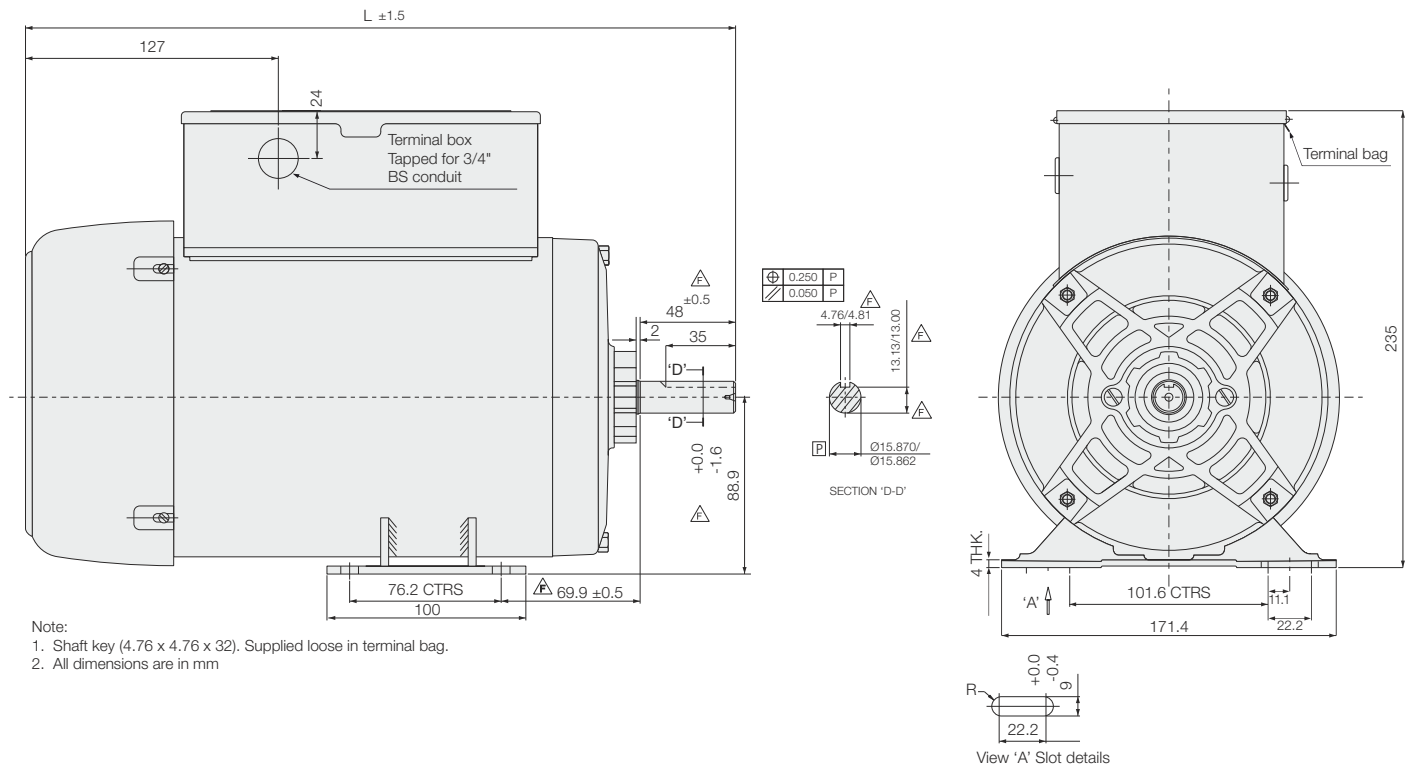
- Note:
1. Shaft key (4.76 x 4.76 x 32). Supplied loose in terminal bag.
 2. All dimensions are in mm

TECHNICAL SPECIFICATIONS @ 225 V, 1Ø, 50 Hz, 1425 RPM

HP	FRAME	MODEL	ENCLOSURE	TYPE	CAPACITOR (µF)		Rated FL		STT (%FLT)	EFFICIENCY %	PF	MOTOR Wt. in kg	L
					Start	Run	A	W					
0.25	B56	LK3072	DP	CSIR	50	NA	2.6	370	275	49	0.63	8	249
0.50	B56	LK3071	DP	CSIR	80	NA	4.2	650	275	57	0.69	10	264
1.00	B56	LK1158	DP	CSCR	120	15	5.8	1060	275	71	0.82	15	304

(STT - Starting Torque, FLT - Full Load Torque, PF - Power Factor)

B56 - TOTALLY ENCLOSED, FAN-COOLED WITH LARGE TERMINAL BOX AND FOOT MOUNTING



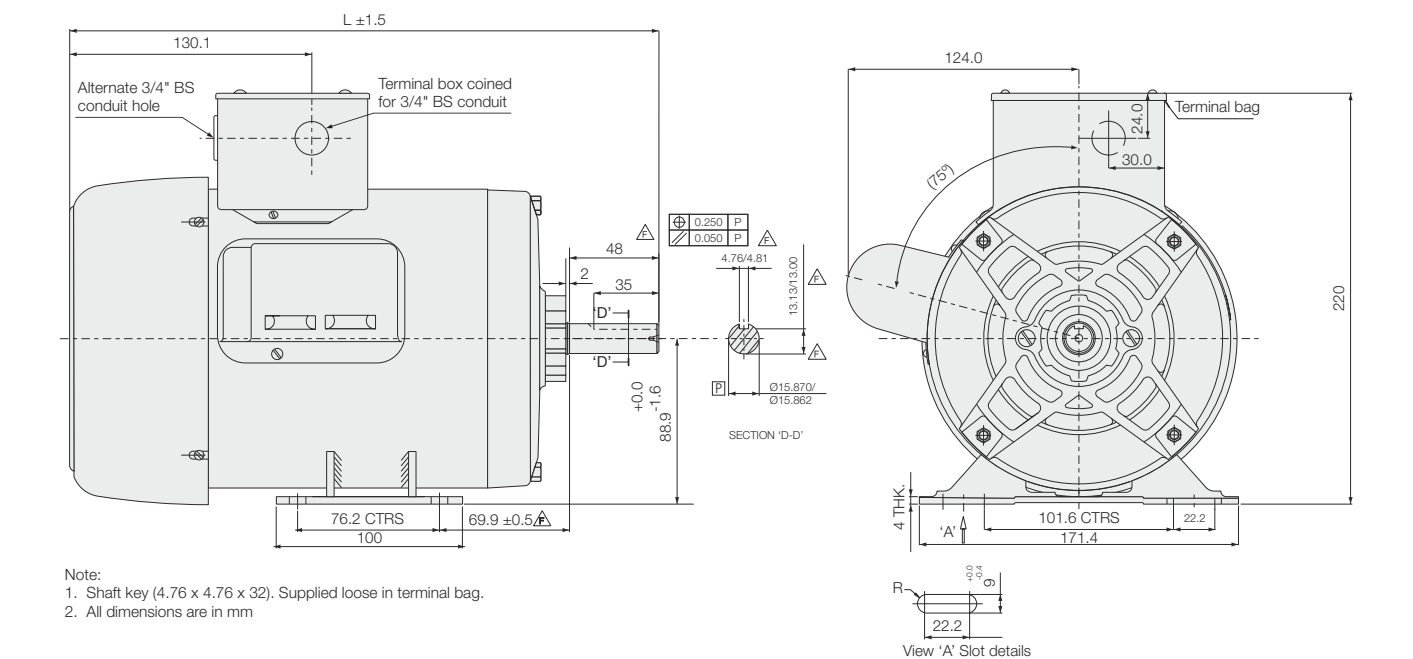
- Note:
1. Shaft key (4.76 x 4.76 x 32). Supplied loose in terminal bag.
 2. All dimensions are in mm

TECHNICAL SPECIFICATIONS @ 225 V, 1Ø, 50 Hz, 1425 RPM

HP	FRAME	MODEL	ENCLOSURE	CAPACITOR (µF)		TYPE	Rated FL		STT (%FLT)	EFFICIENCY %	PF	MOTOR Wt in kg	L
				Start	Run		A	W					
1.0	B56	LK1374	TEFC	120	10	CSCR	5.8	1060	275	71	0.82	17	357

(STT - Starting Torque, FLT - Full Load Torque, PF - Power Factor)

B56 - TOTALLY ENCLOSED, FAN-COOLED WITH MEDIUM TERMINAL BOX AND FOOT MOUNTING



- Note:
1. Shaft key (4.76 x 4.76 x 32). Supplied loose in terminal bag.
 2. All dimensions are in mm

TECHNICAL SPECIFICATIONS @ 225 V, 1Ø, 50 Hz, 1425 RPM

HP	FRAME	MODEL	ENCLOSURE	TYPE	Start CAP (µF)	Rated FL		STT (%FLT)	EFFICIENCY %	PF	MOTOR Wt in kg	L
						A	W					
0.25	B56	LK1326	TEFC	CSIR	50	2.6	370	275	49	0.63	10	287
0.50	B56	LK1350	TEFC	CSIR	100	4.2	650	275	57	0.69	12	322
0.75	B56	LK1365	TEFC	CSIR	120	5.7	860	275	64	0.67	15	342

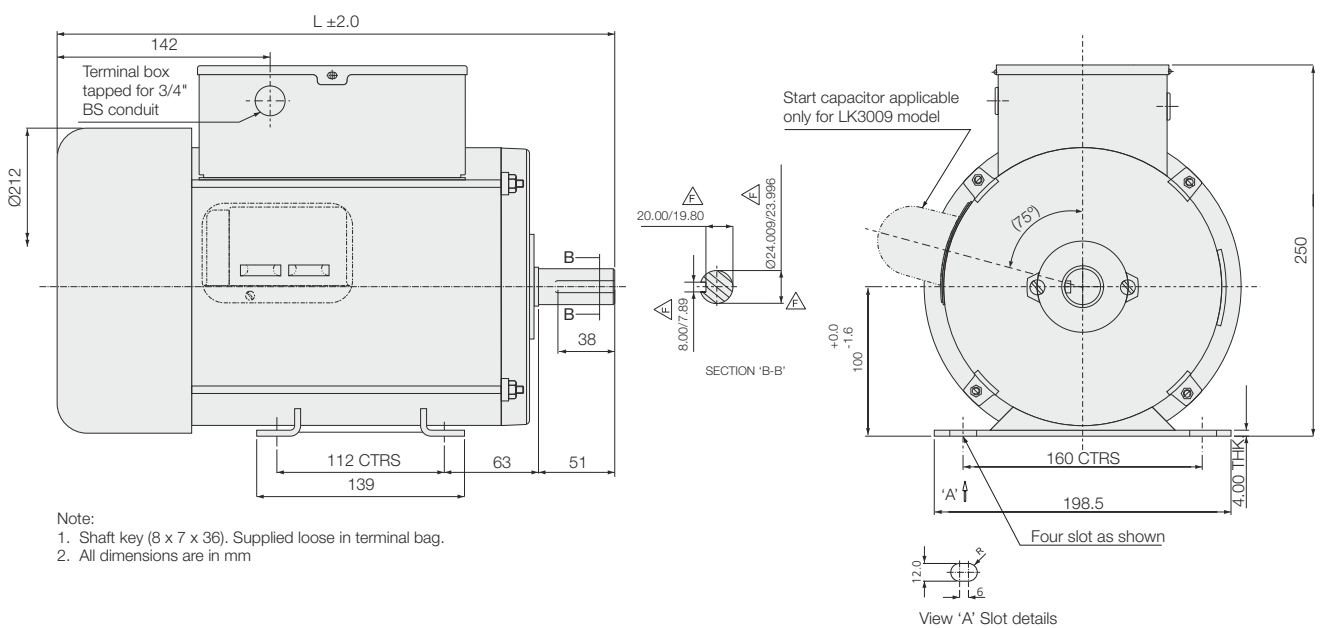
(STT - Starting Torque, FLT - Full Load Torque, PF - Power Factor)

100S SERIES MOTOR

MANUFACTURING RANGE					
SERIES	ENCLOSURES	POLES	SINGLE PHASE		THREE PHASE
			CSIR	CSCR	
100S	TEFC	4		750 - 2250 W	1100 - 2250 W
		6	550 - 750 W	1100 W	

(CSIR - Capacitor Start Induction Run, CSCR - Capacitor Start Capacitor Run)

100S - TOTALLY ENCLOSED, FAN COOLED WITH LARGE TOP TERMINAL BOX AND FOOT MOUNTING

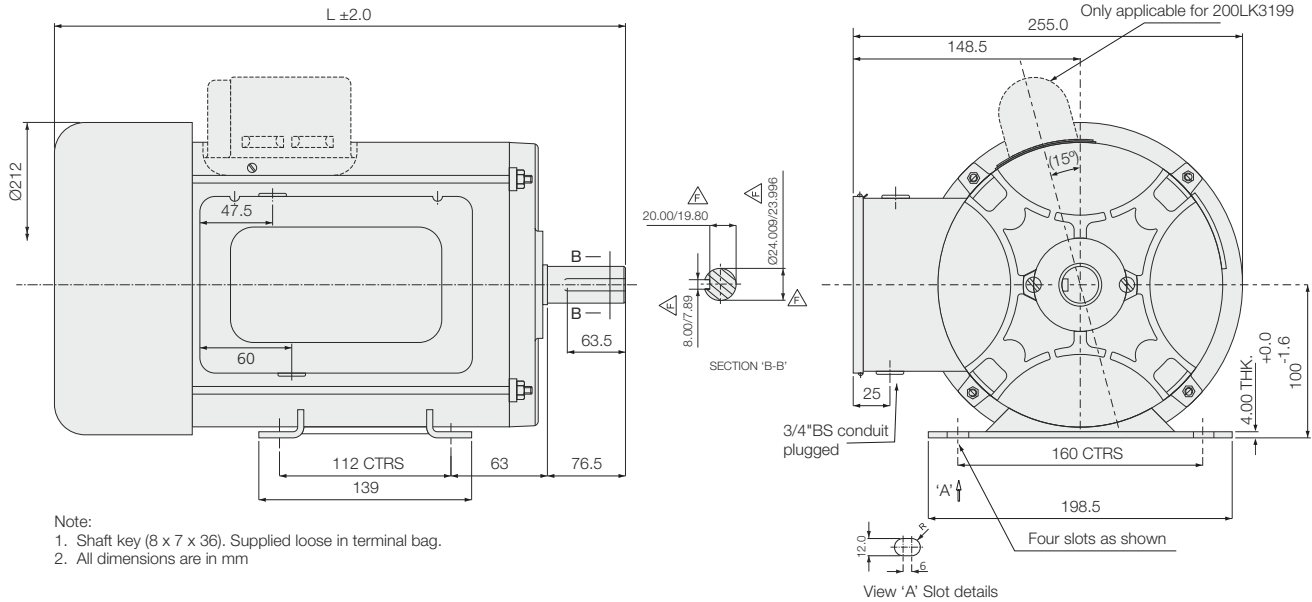


TECHNICAL SPECIFICATIONS @ 225 V, 1Ø, 50 Hz, 1440 RPM													
HP	FRAME	MODEL	ENCLOSURE	TYPE	CAPACITOR (µF)		Rated FL		STT (%FLT)	EFFICIENCY %	PF	MOTOR Wt in kg	L
					Start	Run	A	W					
1.5	100S	LK1386	TEFC	CSCR	200	10	8.8	1600	250	68	0.81	23	350
2.0	100S	LK3007	TEFC	CSCR	200	25	10.4	1900	250	79	0.81	25	350
3.0	100S	LK3009	TEFC	CSCR	280	30	13.5	3000	250	75	0.98	30	373

(STT - Starting Torque, FLT - Full Load Torque, PF - Power Factor)

HIGH QUALITY
HIGH RELIABILITY
CONSISTENT SUPPLY
LARGE CAPACITY
COMPETITIVE PRICES

100S - TOTALLY ENCLOSED, FAN COOLED WITH LARGE SIDE TERMINAL BOX AND FOOT MOUNTING



Note:
 1. Shaft key (8 x 7 x 36). Supplied loose in terminal bag.
 2. All dimensions are in mm

TECHNICAL SPECIFICATIONS @ 225 V, 1Ø, 50 Hz, 1440 RPM

HP	FRAME	MODEL	ENCLOSURE	CAPACITOR (µF)		TYPE	Rated FL		STT (%FLT)	EFFICIENCY %	PF	MOTOR Wt in kg	L
				Start	Run		A	W					
2.0	100S	LK3198	TEFC	200	25	CSCR	10.4	1900	300	79	0.81	25	376
3.0	100S	LK3199	TEFC	320	40	CSCR	13.5	3000	300	75	0.98	30	399

(STT - Starting Torque, FLT - Full Load Torque, PF - Power Factor)



SINGLE PHASE FLAMEPROOF MOTORS

Lawkim single phase flameproof motors are approved for use in Gas Group IIA and IIB as per IS/ISO-60079-1-2007. They have also been certified by the following statutory authorities:

- > Bureau of Indian Standards (BIS)
- > The Director General of Factory Advice Service & Labour Institute, India (DGFASLI)
- > The Chief Controller of Explosives, India (CCOE)
- > Central Mining Research Institute, India (CMRI)
- > ATEX Product certification from ATEX-UK (through Intertek)
- > ATEX System certification from UL

Applications

- > Petrol & diesel dispensing pumps
- > Chemical factories
- > Refineries
- > Paint & varnish works
- > Petrochemical industries
- > Door opening/wall operating mechanism
- > Liquor bottling plants
- > Fertiliser & solvent extraction plants

Construction

Heavy duty seamless steel pipe stator housing with cast iron end-shields designed to withstand internal explosion. All components are hydraulically pressure tested. Motor has solid foot mounting construction.

Electrical Performance

Single phase motors are CSIR (Capacitor Start Induction Run), CR (Capacitor Run) and CSCR (Capacitor Start Capacitor Run). These are suitable for operating with 220 V, 50 Hz, single phase, AC supply and conform to IS996 and BS5000 Part 11. Single phase motors are thermally protected with auto reset therma-trip.

SINGLE PHASE FLAMEPROOF MOTORS

MANUFACTURING RANGE

MOTOR OUTPUT	3000 RPM (SYN) (2 POLE)	1500 RPM (SYN) (4 POLE)	1000 RPM (SYN) (6 POLE)
WATT	90 W - 750 W	90 W - 750 W	60 W - 180 W
HP	1/8 HP - 1 HP	1/8 HP - 1 HP	1/12 HP - 1/4 HP

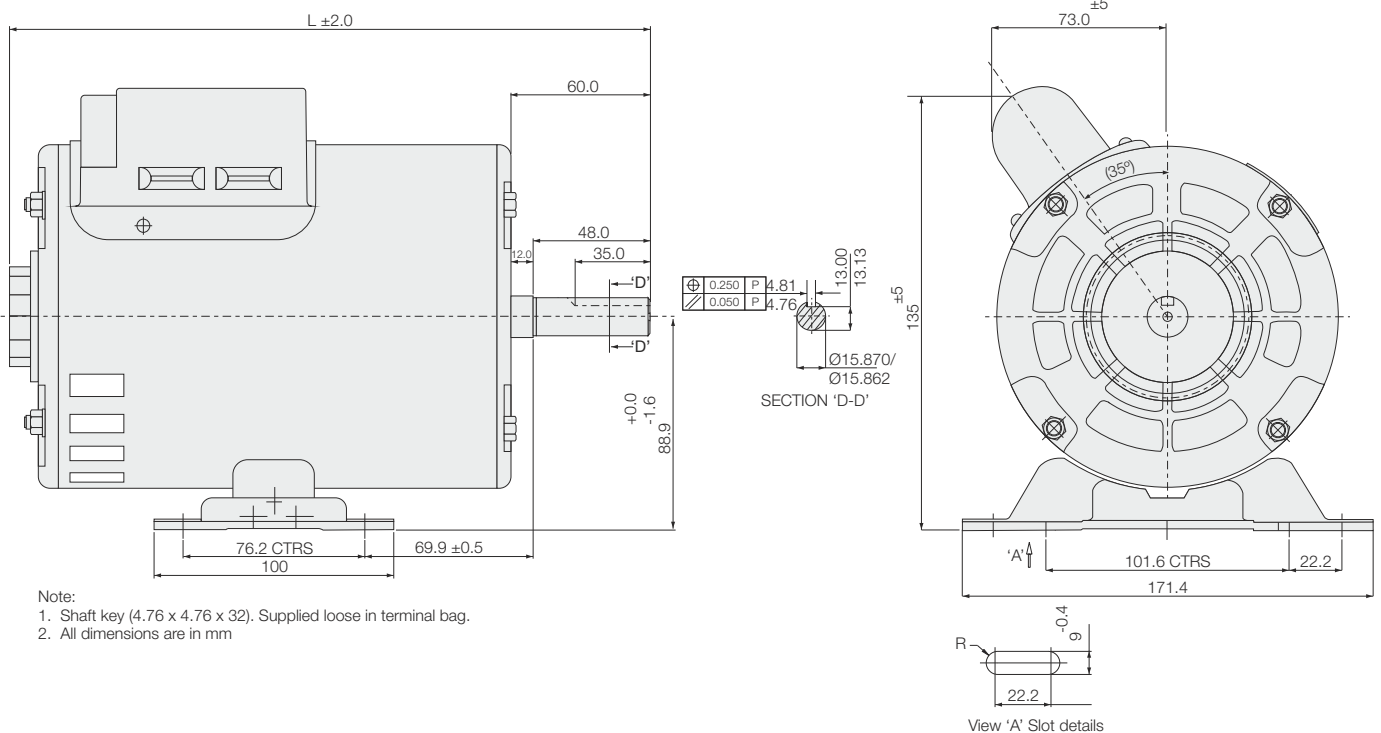
B48 SERIES MOTOR

MANUFACTURING RANGE

SERIES	ENCLOSURES	POLES	SPLIT PHASE	CSIR	CSCR	CSR	THREE PHASE
B48	DP	4	180 - 370 W	180 - 370 W	550 - 750 W	90 - 1000 W	90 - 1000 W
	TE (AOM)	6	90 - 550 W	180 - 550 W	550 - 750 W	90 - 750 W	90 - 1000 W

(CSIR - Capacitor Start Induction Run, CSCR - Capacitor Start Capacitor Run, CSR - Capacitor Start & Run)

B48 - MODEL



- Note:
1. Shaft key (4.76 x 4.76 x 32). Supplied loose in terminal bag.
 2. All dimensions are in mm

TECHNICAL SPECIFICATIONS @225 V, 1Ø, 50Hz, 1440 RPM

HP	FRAME	MODEL	ENCLOSURE	TYPE	Start CAP (µF)	Rated FL		STT (%FLT)	EFFICIENCY %	PF	MOTOR Wt in kg	L
						A	W					
0.25	B48	LK4328	DP	CSIR	80	2.1	369	250	51	0.78	6	257.5
0.5	B48	LK4337	DP	CSIR	120	4.2	660	250	57	0.69	7	269.5

(STT - Starting Torque, FLT - Full Load Torque, PF - Power Factor)

HIGH QUALITY
HIGH RELIABILITY
CONSISTENT SUPPLY
LARGE CAPACITY
COMPETITIVE PRICES



HVAC MOTORS

Lawkim HVAC motors are an integral part of packaged air-conditioning units of all leading MNCs. We work with them right from the design stage to develop a suitable type of motor for their requirement. Due to our vast experience, competent team of engineers, in-house development centre and tool room facility, the development period is shortened. Our large manufacturing capacity ensures consistent supply of high quality motors. All these factors make Lawkim the most preferred partner of several leading HVAC companies like Blue Star, Carrier, Daikin, Hitachi, LG and Voltas.

Applications

Package IDU & ODU units. Capacity - 3 Ton to 22 TR

Output

200 W to 2200 W in 4 pole, 6 pole and high slip mode RPM of 1200 -1050 specially in 4 pole motors. 50 Hz supply.

Features

- > IDU Fan Motor: Option up to 5 speeds. Operates from -20°C to 40°C continuous operation.
- > ODU Fan Motors: Option up to 3 speeds. Operates from -20°C to 60°C continuous operation.
- > Insulation system tested and proved for sustaining extreme humidity and high ambient temperature.
- > Customised solutions for critical applications which are most cost-effective. We work with almost all Indian HVAC equipment makers concurrently, during their design stage.
- > We qualify the motor and conduct validation tests including reliability tests.
- > Powder coated exterior to withstand tough outdoor conditions of rain, dust and humidity.
- > Specialised in making top discharge Fan Motors which are capable of IP55 protection.
- > All types of possible mounting options are made available – Resilient mounting, Lug mounting, Pad mounting, Stud mounting, single and both side shafts is possible in our motors.
- > All motors are thermally protected against accidental lock rotor condition and permanently lubricated for service life of more than 40,000 hours of operation. Motors tested and qualified as per specifications of leading global HVAC equipment makers.

Notes

1. The above table represents typical manufacturing range. Motors with special features and different specifications can also be supplied as per requirement. **2.** Enclosures specified against each series are common to all polarities

of respective series. **3.** Above dimensional drawings are only representative and may not be accurate. **4.** B56 motors can also be offered in TE & DPFC construction.

5. Due to constant development, the product supplied may differ from the specifications and illustrations given here. **6.** For all theoretical calculations 1HP = 746 W.



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