SHAKTI

ELECTRIFYING LIFE

ENHANCE YOUR DRIVE WITH INNOVATIVE EV SOLUTIONS

SHAKTI EV MOBILITY ALL PRODUCT BOOKLET

ABOUT THE COMPANY

• SHAKTI PUMPS (INDIA) LIMITED is foraying into the Electric Vehicle (EV) segment through its 100% wholly owned subsidiary company SHAKTI EV MOBILITY PRIVATE LIMITED (SEVMPL). The subsidiary company will manufacture Induction, BLDC and PMSM Motor including Controller, Charger, VFD (EV Application) to optimize battery performance in EV automobiles.

• SEVMPL was incorporated as private limited company under Companies Act 2013 on December 16, 2021 and will leverage on Shakti group's 40 years of experience in making motors, and 5 years of experience in manufacturing Power Electronics Equipment.

• The manufacturing activity of SEVMPL will be carried out at Sector 5, Pithampur, Dist. Dhar (M.P), India with a total installed capacity of 1,32,000 (No.'s) each for Induction, BLDC, PMSM motor and controller. The plant is equipped with state of the art technology along with a full-fledged in-house R&D centre to continue innovation and pace up with current trends.

A FOUNDATION, STRONG & SOUND

The foundation of Shakti Pumps (India) Ltd. was laid in 1982. With a humble beginning, we have gone from strength to success in becoming India's largest manufacturer of submersible pumps, motors and solar controllers today.

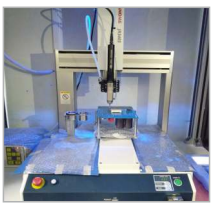
An ISO 9001-2015, ISO 14001:2015 & ISO 45001:2018 company, our cutting-edge manufacturing facility with an installed capacity of 5,00,000 pumps per annum is located in Central India at Pithampur (M.P.).

QUALITY, A WAY OF LIFE AT SHAKTI

We accord paramount importance to quality. Be it practices, procedures or people, every aspect of our company comes together to ensure that customers get products and services of the highest quality. Our quality control and testing labs are amongst the most advanced set-ups in the country- enabling us to meet international quality standards consistently.





OUR TECHNOLOGY, OUR STRENGTH

We employ the finest technology from around the world to manufacture our products. Our state of the art plant has cutting-edge Japanese and European machinery. The use of robots ensures precision of the highest level. Ultra-modern CNC machines, stamping machines, cathode electrode deposition plants, etc. speak volumes about our technological strength.

APPLICATION

India's ARAI (I) Certified Motor Powertrain

SPM (Shakti Powertrain Motor) are customized to meet customer's special requirements. these motors provide high performance with features and solution for individual and industrial applications such as commercial vehicles car, Auto, L 5 Loader, Road sweeper machine, retro fitment, E-Rickshaws and E-Vehicles etc.

VEHICLE CATEGORY

VEHICLE CATEGORY: L1, L2
VEHICLE CATEGORY: L5 M, L5 N

VEHICLE CATEGORY: E-RICKSHAW
VEHICLE CATEGORY: E-CAR

AUTOMOTIVE SYSTEM MOTOR

EV Bus Steering Motor

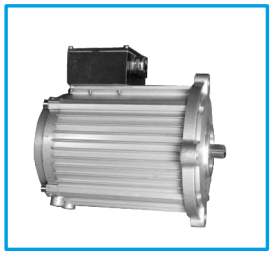
EV Bus Compressor Motor

PRODUCT FEATURES

High Performance Design :	• Dynamically balanced rotors ensure smooth operation. • Double shielded, high-temperature bearings for enhanced durability.
Efficient Cooling System :	• Three-dimensional heat transfer principle in cooling fins design.
Operational Efficiency :	• Minimized friction losses for optimal performance. • Low noise operation ensures smooth running.
Ingress Protection :	• IP67 rating protects against moisture, dust & water ingress.
Reliability & Ease of Use :	• Reliable operation with easy maintenance. • Short payback period for cost-effectiveness.

EV Motor 3Wheeler & 4 Wheeler (1-20 kW) (Upcoming)

7.5 kW

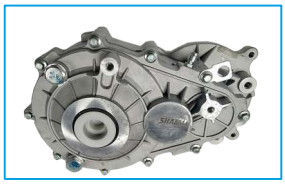


10 kW

15 kW

20 kW

Gear Box



VEHICLE CATEGORY FOR 2W (L1, L2)

PRODUCT FEATURES

- Highly Efficient Motors
- Regenerative Braking
- Highly Durable
- Water and Dust Resistant (IP 67)
- CAN Communication

SHAKTI HUB MOTOR SPECIFICATION

Motor type	Three Phase PMSM Hub Motor										
Motor Category	10 " Hub Motor				12 " Hub Motor				17 " Hub Motor		
Power Rating (Watt)	800	1000	1200	1500	1000	1200	1500	2000	1500	2000	3000
Voltage Range (V)	48/60	48/60	48/60/72	48/60/72	48/60	48/60	60/72	60/72	60/72	60/72	60/72
Max. Speed (RPM)	620	620	670	778	620	670	720	970	720	970	950
Max.Efficiency	90%	90%	90%	91%	90%	90%	91%	91%	91%	91%	91%
Peak Torque (Nm)	89	103	119	122	106	108	125	145	125	145	175
Vehicle Speed (KMPH)	49	49	53	62	50	55	60	80	70	94	92
Brake Type	Drum/ Disc	Drum/ Disc	Drum/ Disc	Drum/ Disc	Drum/ Disc	Drum/ Disc	Drum/ Disc	Drum/ Disc	Disc	Disc	Disc
Rim Size (INCH)	10 X 2.15	10 X 2.15	10 X 2.15	10 X 2.15	12 X 2.5	12 X 2.5	12 X 2.5	12 X 2.5	17 X 2.5	17X 2.5	17 X 2.5
IP Rating	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67

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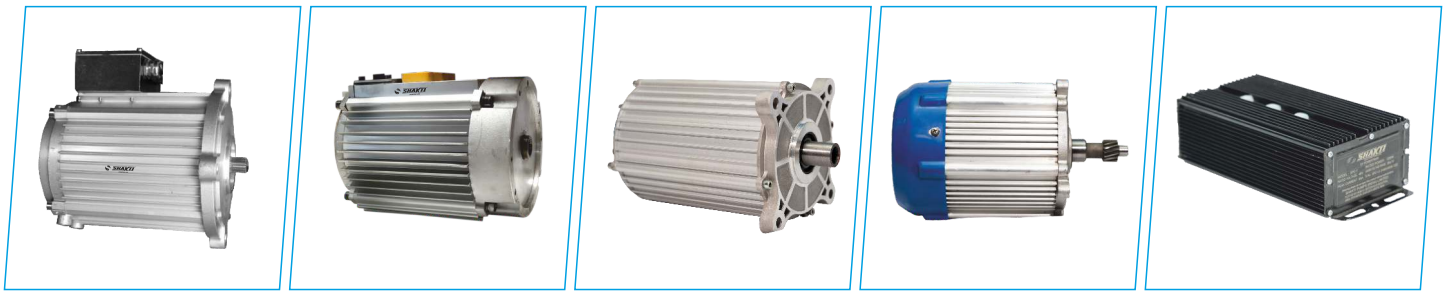
VEHICLE CATEGORY FOR 3W, 4W (L5M, L5N, E-CAR)



PRODUCT FEATURES

- ARAI & Natrax Certified (Govt. Approved)
- Highly Efficient Motor
- CAN Communication
- Long Working Life
- Water and Dust Resistant (IP 67)
- Regenerative Braking with Hill Assistant

SHAKTI L5M,L5N,E-CAR VEHICLE SPECIFICATION

Vehicle Category For 3- Wheeler and 4-Wheeler									
Motor Category	**E-Rickshaw**			**L5 Auto and Loader**				**E-Car**	
Motor Type	BLDC/ IPMSM	BLDC/ IPMSM	BLDC/ IPMSM	Induction	Induction	Induction	Induction	Induction	Induction
Power Rating (kW)	1	1.2	1.5	4	5	7.5	10	15	20
Voltage Range (V)	48/60	48/60	48/60	48/60	48/60	60/72	96	96	144
Rated Speed (RPM)	3000	3000	3000	3000	3000	3400	4500	3000	4000
Max. Speed (RPM)	3000	3300	3600	6000	6000	7000	7000	6500	6800
Rated Torque (Nm)	3.4	3.9	4.7	12.7	15.9	21	21	47	57.9
Peak Torque (Nm)	22	28	29	80	105	120	125	158	230
Rated Current (A)	22/18	25/20	30/25	98/78	123/97	128/110	115	170	152
Shaft Type	Gear	Gear	Gear	Spline	Spline	Spline	Spline	Spline	Spline
IP Rating	IP 67	IP 67	IP 67	IP67	IP67	IP67	IP67	IP67	IP67

AUTOMOTIVE SYSTEM MOTOR

STEERING/COMPRESSOR/TRACTION

INTRODUCTION

Empowering Electric Vehicles with Advanced Electric Motors.
The automotive system motor serves as the heart of electric vehicle technology, converting electrical energy into powerful mechanical motion. Designed for high performance and efficiency, our electric motors offer cutting-edge solutions for passenger cars, buses, and light commercial vehicles.

KEY FEATURES

- High Performance : Delivering robust power for enhanced driving experience.
- Efficient Electric Drive : Maximizing energy efficiency and reducing environmental impact.
- Versatile Applications : Ideal for steering systems, compressors, and traction motors.

WHY CHOOSE US?

- Innovative Technology : Leading the way in electric mobility solutions.
- Reliability : Built to withstand rigorous demands of automotive applications.
- Sustainability : Contributing to a cleaner and greener future.

TECHNICAL CHARACTERISTICS

COST EFFICIENCY

Lower operating costs lead to a shorter payback period.

High efficiency ensures optimal energy use & longer range.

ENHANCED DURABILITY

Better heat dissipation and reduce temperature rise.

Extended motor lifespan with “H” class insulation for reliable performance.

ENVIRONMENTAL IMPACT

Significant reduction in CO2 emissions.

Contributing to a cleaner, greener environment.

KEY CHARACTERISTICS

APPLICATION

- Steering Motor
- Compressor Motor
- Fans & Blowers
- Cranes, Hoist & Lift.

FEATURES & BENEFITS

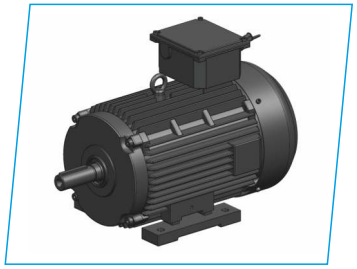
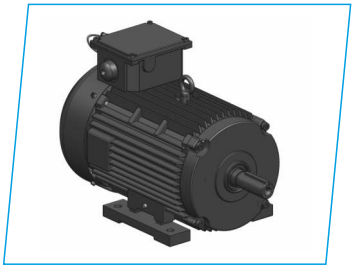
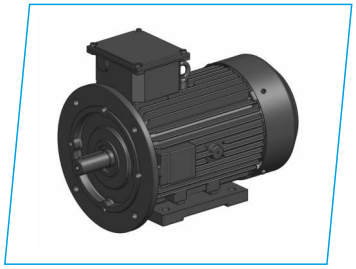
High Performance Design : • Dynamically balanced rotors ensure smooth operation • Double shielded, high-temperature bearings for enhanced durability.

Robust Protection : • IP67 rating protects against moisture, dust & water ingress.

Efficient Cooling System : • Three-dimensional heat transfer principle in cooling fins design.

Operational Efficiency : • Minimized friction losses for optimal performance. • Low noise operation ensures smooth running.

Reliability & Ease of Use : • Reliable operation with easy maintenance. • Short payback period for cost-effectiveness.

	STEERING MOTOR						
	AC (CAST IRON)		AC (ALUMINIUM)		IPMSM (ALUMINIUM)		
MOTOR POWER (kW)	2.2	3.7	2.2	3.7	1.5	2.2	3
Volts (V)	415	415	415	415	120	353	353
Rated Ampere (A)	4.7	7	4.8	7.8	8.5	6.2	8
Rated RPM	1452	1457	1460	1458	1500	1200	1500
Rated Torque N-m	14.5	24.1	14.36	14.58	9.5	17.9	21.5
Peak Torque N-m	49.56	70	66.75	70	23	55.8	-
Type	AC	AC	AC	AC	IPMSM	IPMSM	IPMSM
Shaft Type	Key way	Key way	Spline	Spline	Spline	Spline	Spline
Output Phase	3ø	3ø	3ø	3ø	3ø	3ø	3ø
Poles	4	4	4	4	6	6	8
protection Type	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Insulation class	H	H	H	H	H	H	H

	COMPRESSOR MOTOR						NEW-UPCOMING
	AC (CAST IRON)		AC (ALUMINIUM)				AXIAL FLUX
MOTOR POWER (kW)	2.2	3.7	2.2	3.7	5.5	7.5	6
Volts (V)	415	415	415	415	415	415	215
Rated Ampere (A)	5.3	7.3	5.1	7.7	10.1	14	21.1
Rated RPM	964	953	1450	1452	1453	1462	3000
Rated Torque N-m	21.76	37.24	9.08	14.62	20.96	28.32	19.1
Peak Torque N-m	-	-	-	-	-	-	59.21
Type	AC	AC	AC	AC	AC	AC	AXIAL FLUX
Shaft Type	Key way	Key way	Key way	Key way	Key way	Key way	Key way
Output Phase	3ø	3ø	3ø	3ø	3ø	3ø	3ø
Poles	6	6	4	4	4	4	20
protection Type	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Insulation class	H	H	H	H	H	H	H

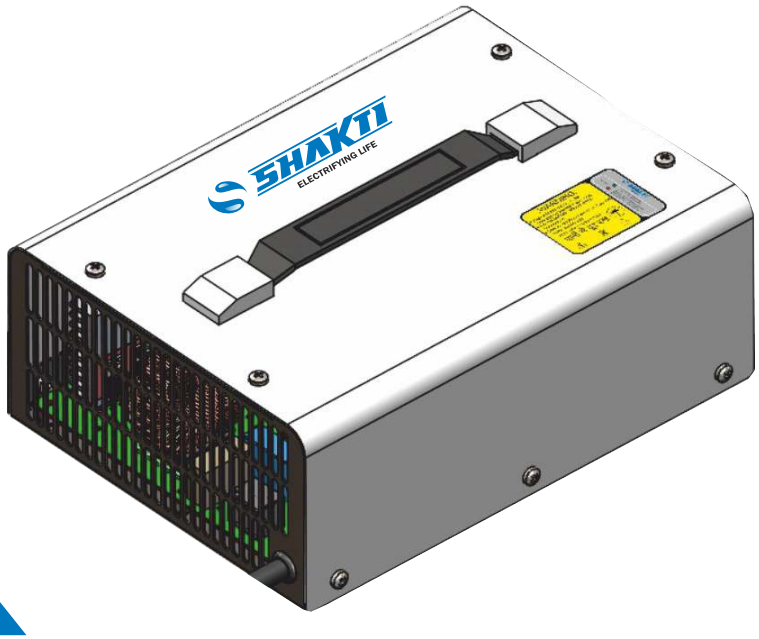
TECHNICAL PARAMETER

- Motor Type : AC three phase induction motor.
- Enclosure : TEFC (Totally enclosed fan cooled)
- Frame : 100, 112 , 132
- Mounting : Foot cum flange B35 & foot mounted B3
- Rated Power : 6P – 2.2KW & 3.7KW I 4P – 2.2KW & 3.7KW
- Voltage : 120-415 50 Hz
- Rated Speed : 953/1462 R.P.M.
- Ambient Temperature : -20 ° to +55° C
- Altitude : Should be below than 1000 meters above sea level.
- Connection : 50Hz ,380-415 V star /delta & 220-240 delta
- Direction of Rotation : Anti- clockwise or clockwise as seen from the driver end side
- Insulation Class : Class “H”
- Degree of Protection : IP 67
- Cooling Method : IC411/Shaft mounted fan.

Special type of winding wire used for EV application.

SHAKTI EV CHARGER

The Shakti EV Charger is a powerful and efficient solution for charging electric two-wheelers and three-wheelers, proudly designed and developed in India. It operates on a single-phase mains supply, with near to unity power factor and low THD in current which ensures high energy efficiency. The charger is capable of charging both lithium-ion and lead-acid batteries, with settings configured via CAN communication protocol & Shakti EV software.



KEY FEATURES

- Battery reverse polarity protection.
- Operate at unity power factor which makes it energy efficient.
- Better charging profiles to improve battery health.
- LED indications for different charging levels, faults & warnings.
- No battery connected detection.
- Audio alarm during power on.
- Beep sound on full battery charge.
- Portable with easy handling.
- Automatically protects the battery from over charging.
- Compatible with all commercial batteries available in the market.

APPLICATIONS

1. Perfect for vehicles such as electric scooters and e-rikshaw.
2. Suitable for charging different types of batteries(Lead acid/ Lithium ion).

BENEFITS

1. Promotes Sustainability.
2. Energy efficient and cost saving.

PROTECTIONS

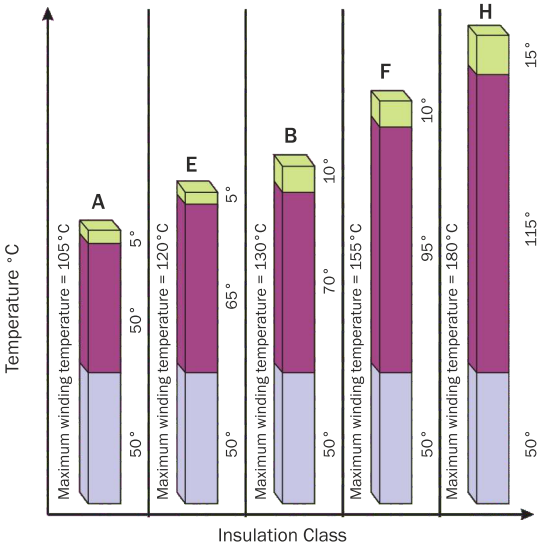
1. Input under/over voltage protection.
2. Output under/over voltage protection.
3. Output over current protection.
4. Over temperature protection.
5. Short circuit protection.
6. Reverse polarity protection.

SPECIFICATIONS

Parameters	SHAKTI EV CHARGER 1.2 kW
INPUT PARAMETERS	
Input Voltage	190V-265V
Input Current	< 7A
Inrush Current	< 20A
Leakage Current	< 3.5mA
Input Frequency	47Hz-63Hz
Power Factor	> 0.95
Efficiency	>92%
OUTPUT PARAMETERS	
Output Voltage Range	40V-72V
Maximum Output Current	20A
Output Power	1200W
Output Ripple Voltage	< 1%
Line Regulation	< 2%
Load Regulation	< 2%
USER INTERFACE & COMMUNICATION	
Indicator	LED
Audio Indicator	Buzzer
Communication	CAN, UART
PHYSICAL	
L X W X H	260mm x 185mm x 90 mm
Net wt. / Gross wt.	Approx 3 KG
OTHER INFO	
Operating Temperature	0 - 50 °C
Relative Humidity	0-95% RH(Non-condensing)
Noise	< 45 dB
IP Degree of Protection	IP 20
Cooling	Air Forced Cooling

Understanding the Insulation Class & Temperature

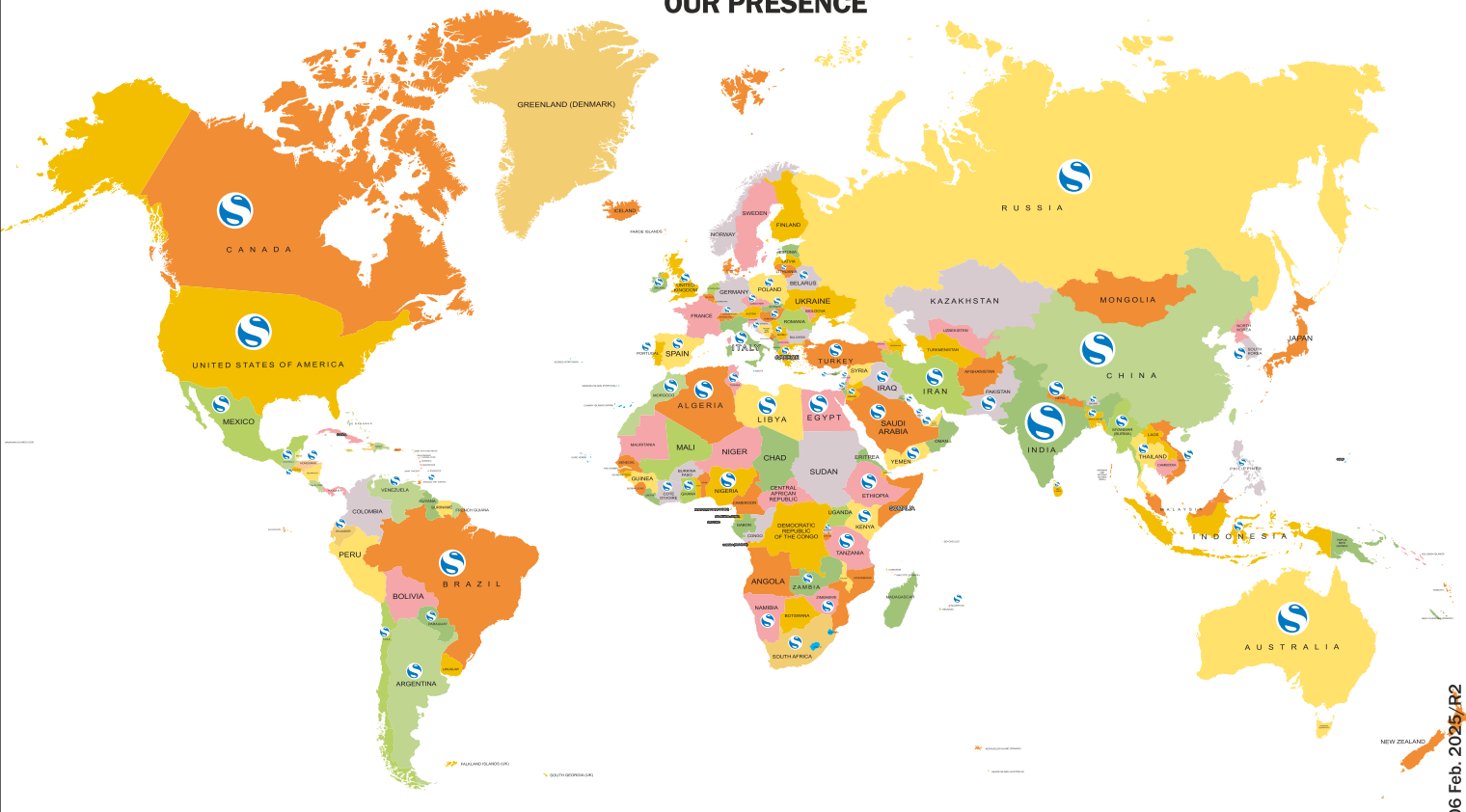
Motors are manufactured with class 'H' insulation. The reserve thermal capacity helps to maintain the integrity of the insulation and motor life. Temperature rise and maximum temperature at the hottest points of winding is according to temperature classes IS 325/ IEC 60034-1



Ins. Class	Maximum winding temperature
A	105 °C
E	120 °C
B	130 °C
F	155 °C
H	180 °C

Ambient temperature
Maximum temperature rise
Temperature margin

OUR PRESENCE



SAP CODE : 2000020822

VC : 000000

Feb./ 2024-25/L0/2000

06 Feb. 2025/R2

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