LITHIUM POWER
ENERGY INFINITE

LONG LASTING BATTERIES IN THE INDUSTRY

PATENTED PRODUCTS PATENTED

Corporate Brochure

2023


FUEL POWER
Always Ahead
solar energy systems
LA CO
Energy UNLIMITED
KRATOS
FUTURE ENERGY
INNOVATION • POWER • PERFORMANCE
POWER LIV
POWERING HAPPINESS
SUPER ENERGY
Tubular Solar Battery
LITHIUM POWER
ENERGY INFINITE

LITHIUM POWER -

The Commercial company

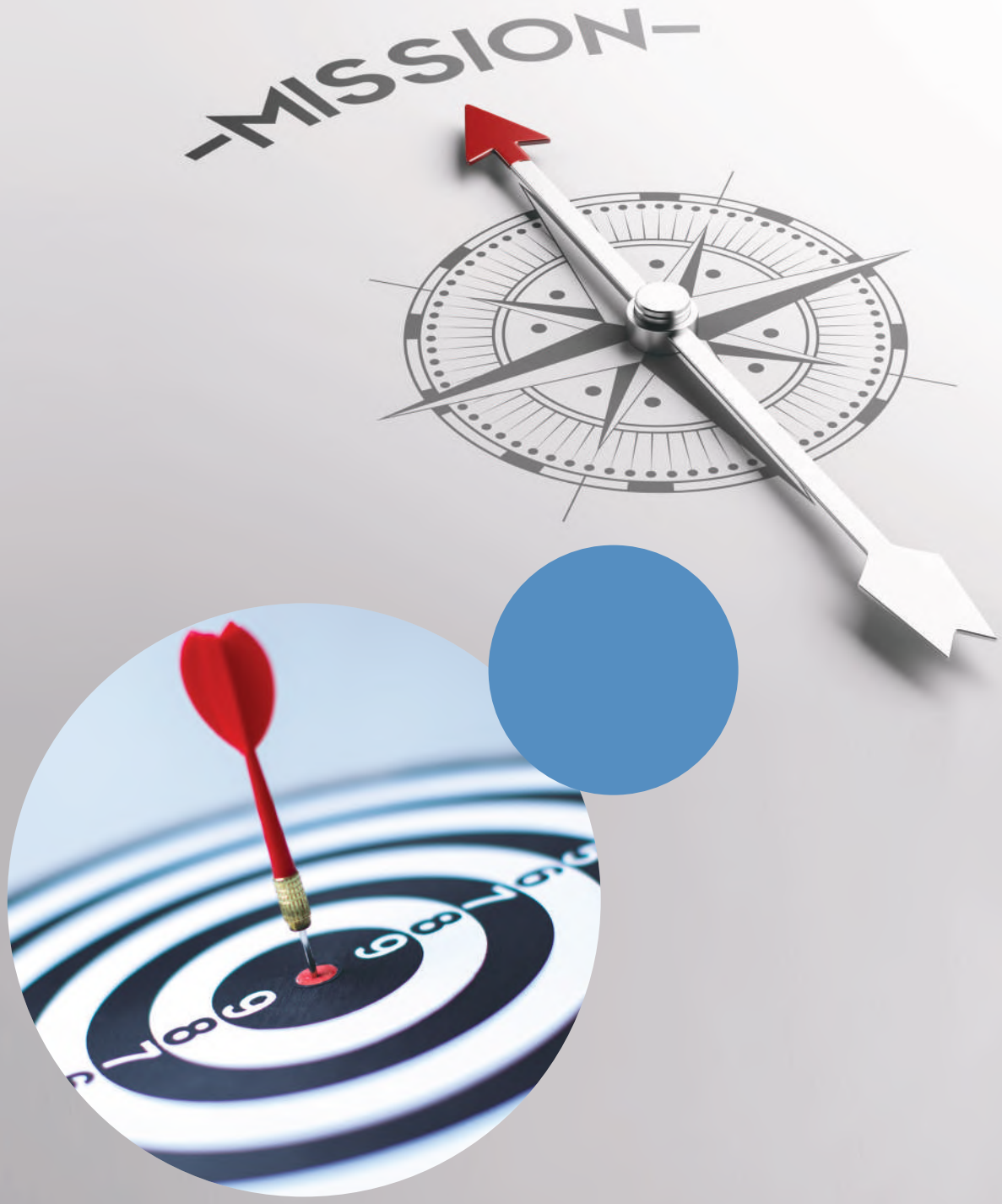
Lithium Power, in a very short span of time has taken the market, both national & international, by storm. With a remarkable vision and foresight for the growing energy solutions industry, today the brand boasts an envious footprint across 30+ countries. Powered by passion and fuelled by innovation, Lithium Power has established itself as a strong player in the energy solution space with our offerings of the full range of Solar Tubular, Inverter Tubular, AGM, GEL Batteries in 12V & 2V, Automotive batteries for JIS and DIN Range, Solar and Home Inverters and Lithium solution for Residential Solar Solutions

OUR VISION

To be a Global Leader in energy storage products driven by innovative technology and excellence in manufacturing & services.

OUR MISSION

Establish Lithium Power as a strong player in the energy-solution space globally, by developing an ecosystem of delighted customers, committed partners, exceptional product quality, and delightful services. Lithium Power has established itself as a strong player in the energy solution space. With our offerings in Automotive batteries, Inverters and Inverter Batteries, Stabilizers, Residential Solar Solutions, we are bringing in a new dimension of smart energy products.



OUR STRENGTH

Presence across
30+ countries

Among top 5
Batteries Exporter from India

Team size of
350 Professionals

3 Manufacturing Plants

Technological team up with
Malaysia, Vietnam and China

STRENGTH

At a glance

300+
People

30+
R&D resources

3
Manufacturing Units in India and Bangladesh

10,000+
Dealers

100+
Distributors

200+
Service points

20+
Sales offices & Warehouses

30+
Countries of Sale

SUPER STRONG TEAM...

Deepak Pathak
Founder & MD

Arpan Kulshrestha
General Manager-Exports

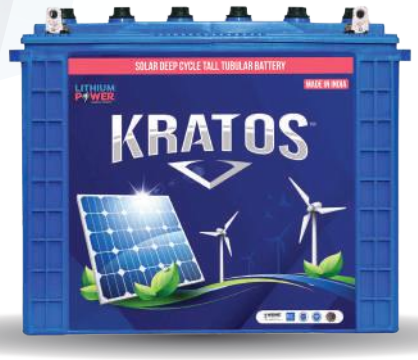
Alexander Robinson
GM International Business

Mayur Pathak
International Sales Manager

Aziz Saeed
Sales Manager, Yemen

POWER STORAGE –

Batteries



Inverter Battery

Lithium Power has lived up to the promise of delivering a reliable solution for the power outages, ensure productivity in the commercial environment and helped people have continuity and comfort in their lives.

Solar Battery

Lithium Power has launched its solar-flooded tubular mono-bloc batteries designed to offer reliable, consistent and low maintenance power for renewable energy requirements. These batteries can be subject to deep cycle applications and minimum maintenance in rural and power-deficit areas.

VRLA/SMF Battery

Lithium Power Sealed Maintenance-Free (SMF) Batteries are designed to offer reliable, consistent and low maintenance power for back up power and UPS applications. These batteries can be subject to deep cycle applications and minimum maintenance in areas experiencing frequent power outages.

Traction Battery/ LifePO4

A new range of traction batteries from Lithium Power has seen the light of the day after going through rigorous R&D and multiple successful test runs. These batteries are custom-made to be used in forklifts, electric golf carts, riding floor scrubbers and other electric vehicles. LifePo4 is specially designed for solar and industrial use with IFR 32700, 4S4P cells.

SOLAR PRODUCTS –

Hybrid Inverters

Lithium Power Hybrid Inverters are High Performance, Pure Sine Wave Technology using PWM Intelligent Battery charging for longer life of the battery. Loaded with consumer-friendly safety features, these inverters are poised to lead the market in this segment.

PCU

Lithium Power MPPT-based solar PCU systems are state-of-the-art solutions catering to a large variety of applications involving solar solutions. These PCUs clubbed with our long-life batteries create the perfect solution for customers seeking value for money in solar-based solutions.

PV Panels

These high-quality / high-performance modules are suitable for power generation, while being tested visually, mechanically and electrically as per the standard test conditions applicable worldwide.

AUTO BATTERIES –

Auto Battery JIS Standard

The Lithium Power battery is designed to take on the vagaries of nature, the rough road conditions, the extreme weather conditions and the ever increasing demand for new generation vehicles. 32 Ah –200 Ah

Auto Battery DIN Standard

The Lithium Power battery has been made to take on the vagaries of nature, the rough road conditions, the extreme weather and the ever increasing demand of the new generation vehicles. DIN 44 –DIN 170

Commercial Vehicle Range

Lithium Power has especially been made keeping in mind the requirements of commercial vehicles. The maintenance-free batteries overcome the challenges of rough roads, varied climatic conditions and different usages to give consistent performance over its life.
100 Ah –200 Ah

In-house Pure Lead Alloy

We are amongst the few Indian manufacturers with an integrated unit with lead processing inside the manufacturing unit. Pure Lead is processed with the aid of our advanced facilities. Highly renowned for the purity of 99.98%, our array finds wide application in the industry and is extensively used by manufacturers of Batteries, Pigments, Chemicals, Stabilizers and Solder.

FUTURE ENERGY -

Mr. Ananta Jena

An old industry stalwart, he is an institution in himself with more than three decades of experience in Manufacturing, Production and R&D. Highly passionate & focused towards the sector, he has been associated with EXIDE, LUMINOUS, LIVGUARD, EASTMAN, etc.

Future Energy is one such group that is seriously pursuing the concept of renewable energy. Through its foresighted policies and a vast portfolio, today it is one of the largest manufacturers of storage and renewable energy products in India.

The impressive portfolio includes Solar Tubular, AGM, SMF VRLA, Gel, Automotive and Lithium Solutions. It is one of few 100% integrated battery manufacturing units in North India, equipped with state-of-the-art machinery, cutting-edge technology and the most innovative test equipment like JIBO PDC, SOVEMA Oxide Mill, Taiwan Chargers and automatic lithium assembly line from China. The company boasts of a production capacity of 30,000 Tubular, 100,000 Car /AGM batteries every month.

ZING

AUTOMOTIVE BATTERY

SUPERTUFF GRID TECHNOLOGY

CARBON + SILVER SMF TECHNOLOGY

A LEADING BRAND OF INDIA

AUTOMOTIVE BATTERY
WITH CARBON AND SILVER TECHNOLOGY

- HIGH CRANKING PERFORMANCE
- BUILT-IN-FLAME ARRESTOR
- CALCIUM+SILVER SMF TECHNOLOGY
- SUITABLE FOR TROPICAL CONDITIONS
- MAINTENANCE FREE BATTERY
- DESIGNED FOR LONG LIFE

LITHIUM POWER™
ENERGY INFINITE

TECHNICAL SPECIFICATION

Old JIS & DIN	NEW JIS	ACDelco Part No.	AH			Dimension				Qty /Pallet	Qty /Container
				CCA	RC	L	W	H	TH		
NS40	38B19R		32	280	41	185	127	200	220	96	2304
NS40	38B19R		32	280	41	185	127	200	220	96	2304
NS40L	38B19L		32	280	41	185	127	200	220	96	2304
NS40LS	38B19LS		32	280	41	185	127	200	220	96	2304
NS40Z	40B19R	NS40ZMF	35	310	53	185	127	200	220	96	2304
NS40ZL	40B19L	NS40ZLMF	35	310	53	185	127	200	220	96	2304
NS40ZLS	40B19LS	NS40ZLSMF	35	310	53	185	127	200	220	96	2304
N40	45B24R	N40MF	40	390	60	234	127	200	220	81	1944
N40L	45B24L	N40LMF	40	390	60	234	127	200	220	81	1944
N40S	45B24S		40	390	60	234	127	200	220	81	1944
N40LS	45B24LS		40	390	60	234	127	200	220	81	1944
NS60	50B24R	NS60MF	45	420	67	234	127	200	220	81	1944
NS60L	50B24L	NS60LMF	45	420	67	234	127	200	220	81	1944
NS60S	50B24RS	NS60SMF	45	420	67	234	127	200	220	81	1944
NS60LS	50B24LS	NS60LSMF	45	420	67	234	127	200	220	81	1944
55D23R	55D23R	55D23R	60	500	93	230	172	200	220	63	1512
55D23L	55D23L	55D23L	60	500	93	230	172	200	220	63	1512
N50	48D26R	N50MF	50	480	75	257	172	200	220	54	1296
N50L	48D26L	N50LMF	50	480	75	257	172	200	220	54	1296
N50Z	60D26R	N50ZMF	60	520	93	257	172	200	220	54	1296
N50ZL	60D26L	N50ZLMF	60	520	93	257	172	200	220	54	1296
NS70	65D26R	NS70MF	65	580	103	257	172	200	220	54	1296
NS70L	65D26L	NS70LMF	65	580	103	257	172	200	220	54	1296
80D26R	80D26R	NX110-5MF	70	600	103	257	172	200	220	54	1296
80D26L	80D26L	NX110-5LMF	70	600	103	257	172	200	220	54	1296
N70	65D31R	N70MF	70	610	112	302	172	200	220	51	1224
N70L	65D31L	N70LMF	70	610	112	302	172	200	220	51	1224
N70Z	90D31R		75	630	122	302	172	200	220	51	1224
N70ZL	90D31L		75	630	122	302	172	200	220	51	1224
NX120-7	95D31R	NX120-7MF	80	710	131	302	172	200	220	51	1224
NX120-7L	95D31L	NX120-7LMF	80	710	131	302	172	200	220	51	1224
N90	105D31R	105D31R	90	790	150	302	172	200	220	51	1224
N90L	105D31L	105D31L	90	790	150	302	172	200	220	51	1224
N100	115E41R	N100RSMF	100	670	171	400	171	200	220	36	864
N100L	115E41L	N100LSMF	100	670	171	400	171	200	220	36	864
N120	135F51R	N120MF	120	760	212	505	172	210	230	30	720
N120L	135F51L	N120MF	120	760	212	505	172	210	230	30	720
N150	185G51R	N150SMF	150	920	276	505	212	210	230	24	576
N150L	185G51L	N150SMF	150	920	276	505	212	210	230	24	576
N170	195G51R	N170SMF	170	980	340	505	212	210	230	24	576
N170L	195G51L	N170SMF	170	980	340	505	212	210	230	24	576
N200	225H52R	N200MF	200	1100	387	509	274	217	237	18	432
N200L	225H52L	N200MF	200	1100	387	509	274	217	237	18	432
LN1-54459	LN1-54459		44	420	65	207	174	190	190	72	1728
LN2-55559	LN2-55559	20-55	55	480	84	242	174	190	190	60	1440
LN2-56219	LN2-56219	47-7MF	62	550	97	242	174	190	190	60	1440
LN2-55565	LN2-55565	30-55	55	480	94	242	174	190	190	60	1440
LN3-56638	LN3-56638	30-70	66	560	105	277	174	190	190	54	1296
LN3-57417	LN3-57417	48-7MF	74	640	120	277	174	190	190	54	1296
LN3-57412	LN3-57412	M24-MF	74	640	138	277	174	190	190	54	1296
LN3-57413	LN3-57413	M24-MF	74	640	138	277	174	190	190	54	1296
LN3-56618	LN3-56618	20-66	66	560	134	277	174	190	190	54	1296
LN3-56640	LN3-56640	20-66	66	560	134	277	174	190	190	54	1296
LN4-58590	LN4-58590	94R-72	85	710	141	314	174	190	190	45	1080
LN4-58043	LN4-58043	94R-72	80	700	160	314	174	190	190	45	1080
LN5-58833	LN5-58833		88	800	146	353	174	190	190	36	864
LN5-58827	LN5-58827		88	800	168	353	174	190	190	36	864
LN5-60038	LN5-60038	20-100	100	870	170	353	174	190	190	36	864
LBN1-54321	LBN1-54321	27-44	43	480	66	207	174	175	175	72	1728
LBN1-54322	LBN1-54322	27-44	43	480	66	207	174	175	175	72	1728
LBN2-55457	LBN2-55457	27-55	54	560	74	242	174	175	175	60	1440
LBN2-55459	LBN2-55459	27-55	54	560	74	242	174	175	175	60	1440
LBN2-56077	LBN2-56077	90-6MF	60	600	97	242	174	175	175	60	1440
LBN3-56628	LBN3-56628	27-66	66	620	108	277	174	175	175	54	1296
LBN3-57439	LBN3-57439	27-74	74	700	120	277	174	175	175	54	1296
LBN4-58514	LBN4-58514		85	770	130	314	174	175	175	45	1080
LBN5-58820	LBN5-58820		88	830	145	353	174	175	175	36	864
LBN5-59219	LBN5-59219		92	850	150	353	174	175	175	36	864

*Due to continuous product development our specification are subject to change without notice

$LiFePO_4$ SL-W Series

100AH-200AH

Product Snapshot

- 6000 cells cycle times,5years warranty,10+years life design
- Power wall design ,space saving design
- High density,small size and weight
- Big charge/discharge current up to 100A/200A,suitable for solar storage system
- LCD display with communication port(CAN/RS485/RS232)
- Multi-protection
- Optional smart BMS can communicate with different brand of Hybrid Solar Inverter

$LiFePO_4$ SL-W Series
100AH-200AH

MODEL	51.2V100AH	51.2V200AH	51.2V200AH
Case design	Stand by the wall	Hang on the wall	Stand by the wall
Battery Type	$LiFePO_4$	$LiFePO_4$	$LiFePO_4$
Nominal Battery Model	51.2V100AH	51.2V200AH	51.2V200AH
Nominal Capacity(25℃, 0.2C)	5120Wh	10240Wh	9421.8Wh
Battery cell brand	EVE	EVE	SVOLT
voltage range (Vdc)	40~ 58.4V	40 ~ 58.4V	40 ~ 58.4V
Float Charge Voltage(Vdc)	55.2V	55.2V	55.2V
Max Continuous Discharge Current (A)	100A	100A	100A
Max puse discharge current (A)	200A5Sec.	200A 5Sec.	200A 5Sec.
Max Continuous charge current (A)	50A	50A	50A
Cycle life,+25℃, 0.2C %100DOD	>6000 Cycles	>6000 Cycles	>6000 Cycles
Terminal	M8		
Storage temperature	-20℃ ~45℃		
Storage duration	3 months at 25℃		
Safety standard	UN38.3 MSDS		
IP degree	IP20		
Communication function	CAN/RS485/RS232,standard BMS with multiple Inverters Communication protocol.		
PROTECTION			
Protection	Over current protection, over discharge protection, short circuit protection, overcharge protection,		
AMBIENT			
Working Temperature	Discharge: -20 ℃~ +65℃ Charge: 0 ℃ ~ +45℃		
Humidity	0-95% (no condensation)		
Dimension,DxWxH(mm)	460*195*642	460*235*860	460*180*872

LITHIUM POWER
ENERGY INFINITE

Certified ISO 9001:2008 / ISO 14001:2004 /

TUBULAR DEEP CYCLE BATTERY DATA SHEET

LITTEFB-29060 (12V200Ah@C10)

Nominal Voltage	Rated Capacity@10Hr		Dimensions in mm			Battery Gross weight (Kg)
			Length	Width	Height	
12	200Ah	C10	511±3	190±3	457±3	68±3%

APPLICATIONS

- Solar Backup and renewable energy system
- Telecom Communication Equipment
- Fire Alarm & Security Systems
- Medical Instruments
- Computer & Data center backup
- Electronics PBX System.
- Power Plant & Sub Stations.

ELECTRICAL PARAMETERS

Battery Specified Capacity Test @ 27 ˚C					
C20@10.5V	C10@10.8V	C5@10.8V	C3@10.8V	C2@10.8V	C1@10.5V
209	190	179	147	132	90

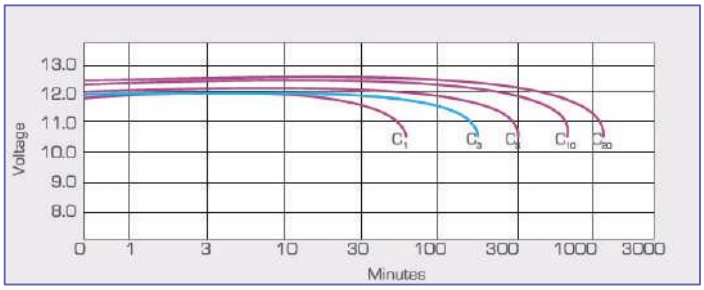
Ah & Wh Efficiency			
Ah Efficiency	> 93%	Wh Efficiency	>80%

OCV at 100% SOC -12.60 - 12.70		Backup @ 400 Watt Load + 15 minutes - 250 Minutes
ISO Standards	Certified ISO 9001:2008 / ISO 14001:2004 /	Self Discharge (27°C): 3 Month Storage - Remaining Capacity: 88% 6 Month Storage - Remaining Capacity: 75%
Cyclic use	Max. Current 25A | Temp Compensation on 15mV/°C | Cycle Use 15.8 to 16.2 volt	
Float Use	Max. Current 25A | Temp Compensation on 15mV/°C | Standby Use 13.8 to 14.2 volt	

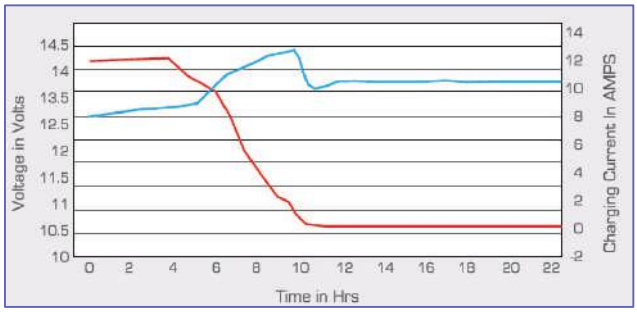
UNIQUE FEATURES:

1. Super TUFF Grid Design with double side pasting for longer battery life.
2. Patent battery design and technology (under Patent). Special EFB technology for solar applications. New refreshed battery container with no float indicator, modern style of magic eyes to check the battery health
3. Tubular Plates with Gauntlets, made of special fabric having ultra-fine pores and high permeability to ensure higher backup and longer life.
4. NAM with Active Carbon: Increased reaction surface area for higher backup.
5. Futuristic Design: New-age premium design with durable high quality material.
6. Low Antimony alloy - Lesser water consumption and reduced water top-up.
7. Optimized Negative paste recipe for fast charge acceptance.
8. Robust Tubular with High pressure die-cast spine - rate of grid corrosion is very low & higher float life.
9. Ceramic Vent Plugs- Special ceramic vent plugs for controlled acid fumes.
10. Highest purity CP Grade Sulphuric Acid for increased storage life.

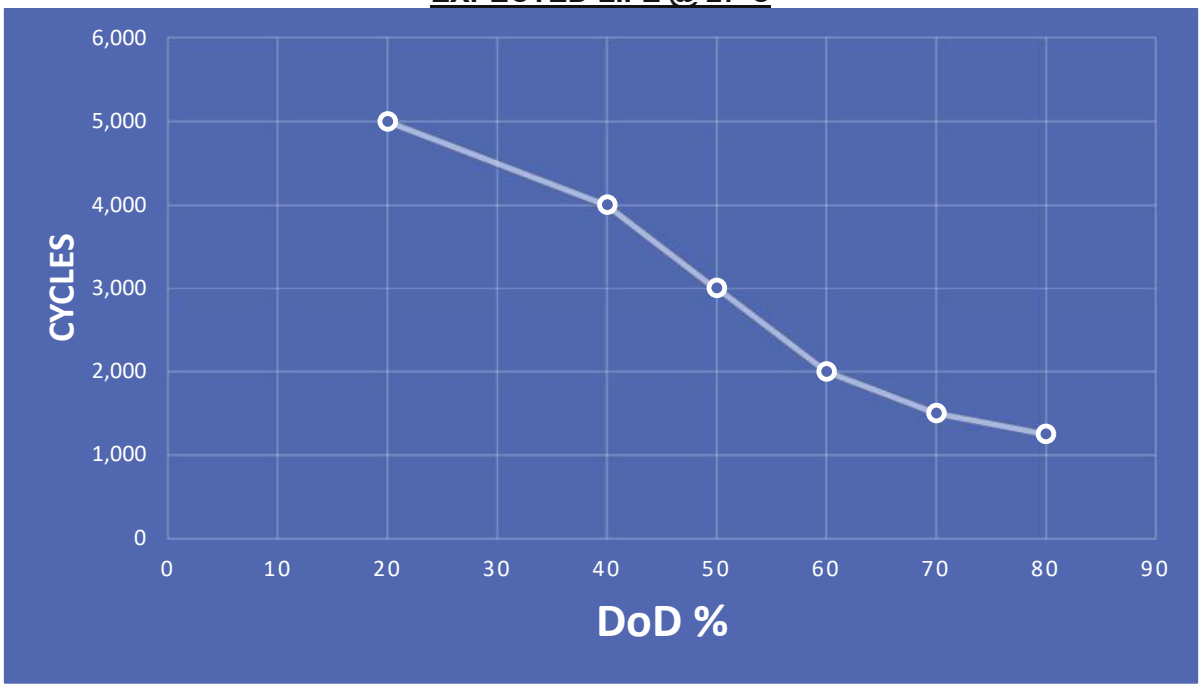
DISCHARGING CHARACTERSTICS at various rates @ 27°C



CHARGING CHARACTERSTICS



EXPECTED LIFE @ 27°C



EFB's – Enhanced Flooded Batteries from Lithium Power Energy Pvt Ltd.

Enhanced flooded batteries (EFBs) offer several benefits in deep cycle applications compared to traditional flooded lead-acid batteries.

EFBs have a more robust construction with thicker and more durable plates, which allows them to withstand deep cycling better than traditional flooded batteries. This means that they are better suited for applications where they are regularly discharged and recharged, such as in renewable energy systems, electric vehicles, and backup power systems.

EFBs have a higher charge acceptance rate than traditional flooded batteries, which means they can recharge more quickly and efficiently. This can be particularly important in applications where there is limited time to recharge the battery between cycles.

Third, EFBs have a longer service life than traditional flooded batteries due to their improved construction and the use of advanced materials. This means that they can provide reliable performance over a longer period of time, reducing the need for frequent battery replacements.

Overall, the benefits of EFBs in deep cycle applications include improved durability, faster recharge times, and longer service life, making them a good choice for a wide range of applications where reliable and consistent power is required.

LP-SSP9335C Series

High power 3 phase Hybrid Inverter

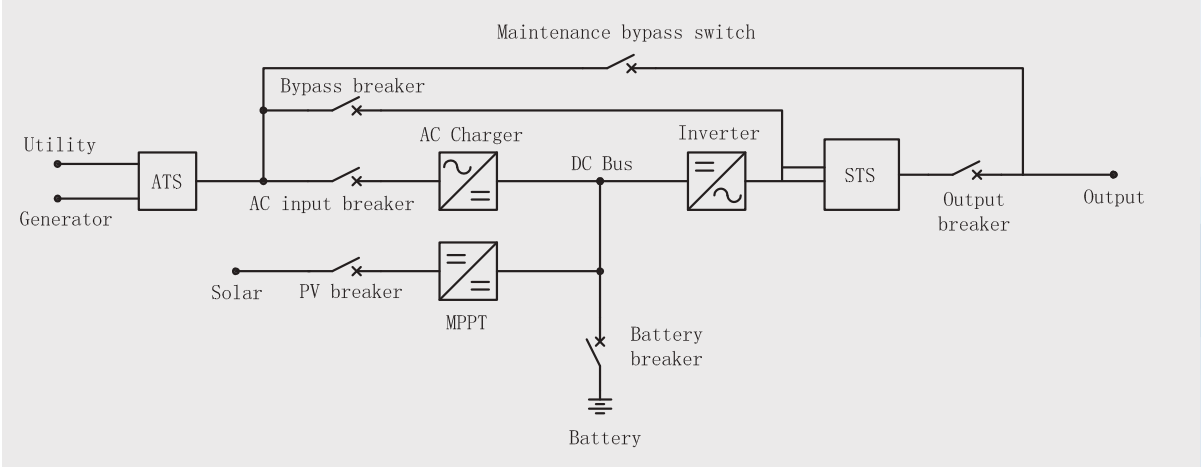
Product Snapshot

Model: 10-300kW
Nominal Voltage: 400VAC
Frequency Range: 50Hz/60Hz
Output Power factor: 0.8lagging~0.8leading

LEADING LEADING EDGE TECHNOLOGY

- Pure sine wave output
- 3 phase hybrid inverter
  battery, load, grid, solar connection all supported
- Programmable operation mode
  peak-shaving, back-up, use the system however you want it
- Seamless transfer
  Uninterruptable power supply guaranteed
- Dry contact output
  Supports remote control of DG
- Support PV+AC mode
- Can work without battery
- Optional ATS
  Auto matic switching between utility and generator

Block Diagram



LP-SSP9335C Series

High power 3 phase Hybrid Inverter

Datasheet	SSP9335C 10	SSP9335C 20	SSP9335C 30	SSP9335C 40	SSP9335C 50	SSP9335C 60
Rated power	9kW	18kW	27kW	36kW	45kW	54kW
AC OUTPUT						
Rated voltage	400VAC 3W+N+PE					
Rated current	13.0A	26.1A	43.5A	52.2A	65.2A	78.3A
Rated frequency	50/60Hz					
Voltage range	360V - 440V					
Frequency	50/60Hz					
PF	0.8lagging~0.8leading					
THDV	≤ 2%linear					
Overload capability	110%-10 mins 120%-1 min					
MPPT						
Max PV Open-circuit voltage	850 VDC					
PV MPPT voltage range	288VDC-512VDC					
Recommended PV power	11.52kWp	29.12kWp	29.12kWp	41.60kWp	58.24kWp	66.56kWp
Max. charging power	11.52kW	29.12kW	29.12kW	41.60kW	58.24kW	66.56kW
Max. charging current	30A	70A	70A	100A	140A	160A
Number of MPPT	1	1	1	1	2	2
Battery voltage range	360-480V(Default : 384V)					
General Information						
Protection degree	IP20					
Environment temperature	-25 °C - +55 °C					
Cooling	Forced-air					
Relative humidity	0 ~95% non-condensing					
Maximum altitude	6000m (derate over 1000m)					
Build-in transformer	yes					
Transfer between on/o ffgrid	≤ 4ms					
Communication						
Display	LCD					
Communication interface	RS485/CAN					

Product specifications are subject to change without further notice .
SSI20-0000011-17

LP-SSP9335C Series

High power 3 phase Hybrid Inverter

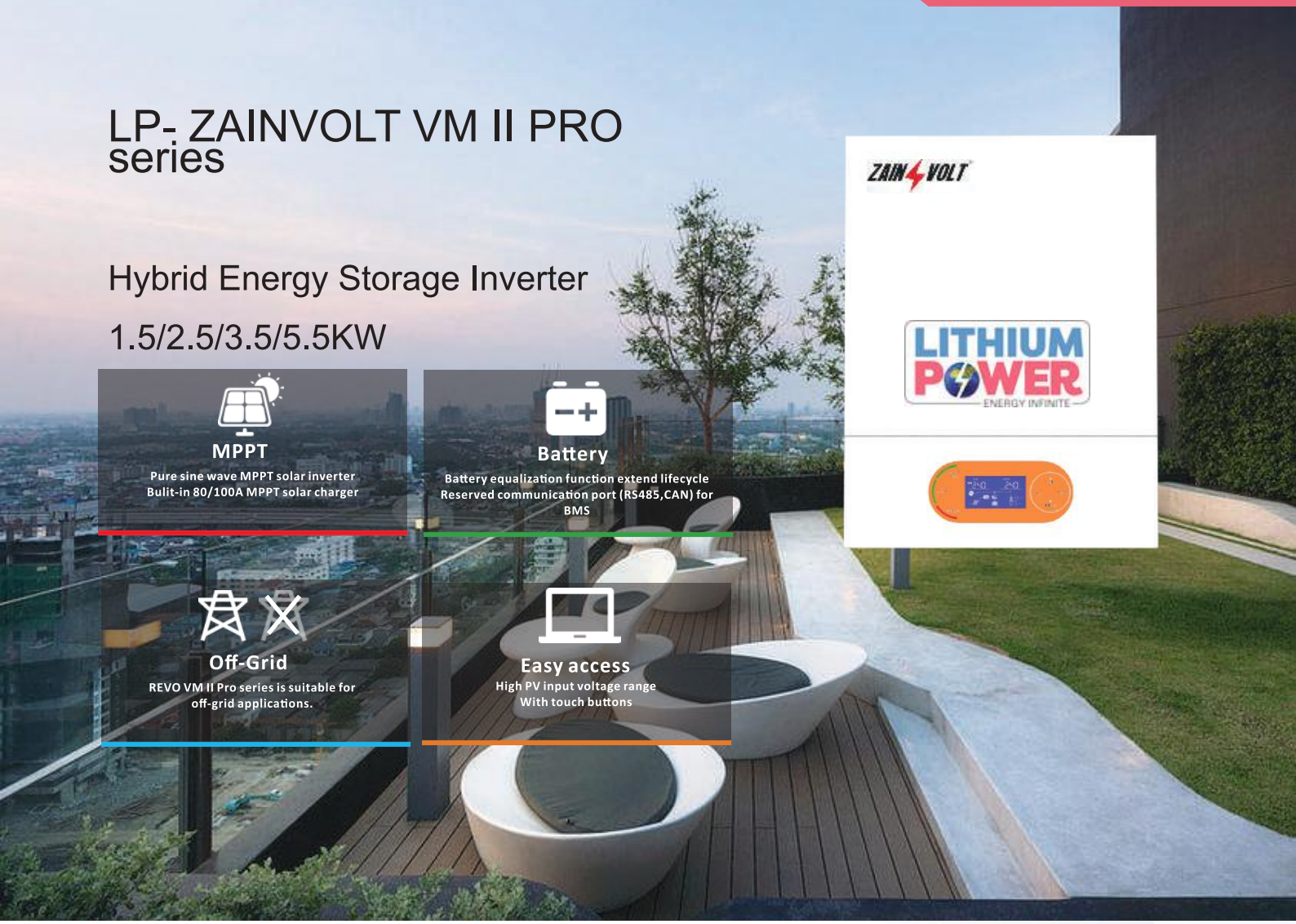
Datasheet	SSP9335C 80	SSP9335C 100	SSP9335C 120	SSP9335C 150	SSP9335C 200	SSP9335C 300	SSP9335C 400
Rated power	72kW	90kW	108kW	135kW	180kW	270kW	360kW
AC OUTPUT							
Rated voltage	400VAC 3W+N+PE						
Rated current	104.3A	130.4A	156.5A	195.7A	260.9A	391.3A	521.7A
Rated frequency	50/60Hz						
Voltage range	360V - 440V						
Frequency	50/60Hz						
PF	0.8lagging~0.8leading						
THDV	≤2%linear						
Overload capability	110%-10 mins 120%-1 min						
MPPT							
Max PV Open-circuit voltage	850 VDC						
PV MPPT voltage range	288VDC-512VDC						
Recommended PV power	83.20kWp	99.84kWp	116.48kWp	166.40kWp	208.00kWp	291.20kWp	374.40kWp
Max. charging power	83.20kW	99.84kW	116.48kW	166.40kW	208.00kW	291.20kW	374.40kW
Max. charging current	200A	240A	280A	400A	500A	700A	900A
Number of MPPT	2	3	4	5	5	7	7
Battery voltage range	360-480V(Default : 384V)						
General Information							
Protection degree	IP20						
Environment temperature	-25 °C - +55 °C						
Cooling	Forced-air						
Relative humidity	0 ~95% non-condensing						
Maximum altitude	6000m (derate over 1000m)						
Build-in transformer	yes						
Transfer between on/o ffgrid	≤ 4ms						
Communication							
Display	LCD						
Communication interface	RS485/CAN						

Product specifications are subject to change without further notice .
SSI20-0000011-17

LP- ZAINVOLT VM II PRO series

Hybrid Energy Storage Inverter

1.5/2.5/3.5/5.5KW



MPPT

Pure sine wave MPPT solar inverter
Bulit-in 80/100A MPPT solar charger

Battery

Battery equalization function extend lifecycle
Reserved communication port (RS485,CAN) for BMS

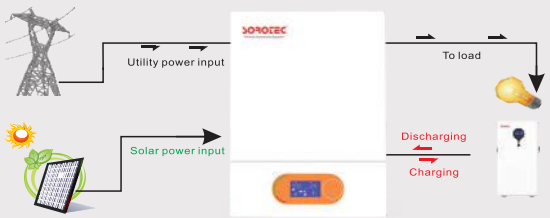
Off-Grid

REVO VM II Pro series is suitable for off-grid applications.

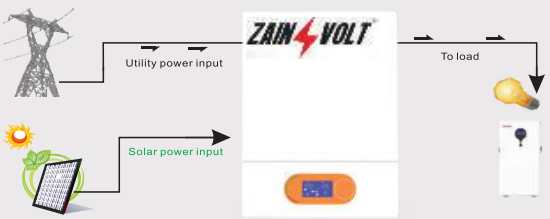
Easy access

High PV input voltage range
With touch buttons

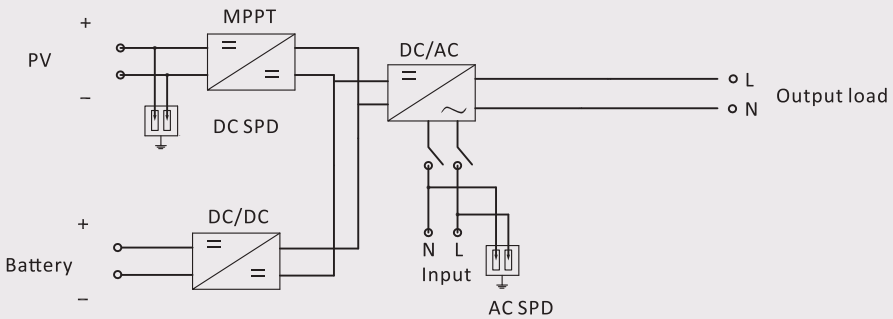
With battery connected



Without battery connected



Schematic diagram



OFF GRID INVERTER

Technical Specification	ZAINVOLT VM II PRO			
Rated Power	1500VA/1500W	2500VA/2500W	3500VA/3500W	5500VA/5500W
AC INPUT				
Voltage	230VAC			
Selectable Voltage Range	170-280VAC（For Personal Computers）；90-280 VAC（For Home Appliances）			
Frequency Range	50Hz/60 Hz（Auto sensing）			
AC OUTPUT				
AC Voltage Regulation （Battery Mode）	230VAC ± 5%			
Surge Power	3000VA	5000VA	7000VA	11000VA
Efficiency（Peak）	up to 93.5%			
Transfer Time	10ms（For Personal Computers）；20ms（For Home Appliances）			
Waveform	Pure sine wave			
BATTERY				
Battery Voltage	12VDC	24VDC		48VDC
Floating Charge Voltage	13.5VDC	27VDC		54VDC
Overcharge Protection	16VDC	33VDC		63VDC
SOLAR CHARGER & AC CHARGER				
Maximum PV Array Open Circuit Voltage	500VDC			
Maximum PV Array Power	2000W	3000W	4500W	5500W
MPPT Range @ Operating Voltage	90~450VDC		60~450VDC	
Maximum Solar Charge Current	80A		100A	
Maximum AC Charge Current	60A		80A	
Maximum Charge Current	80A		100A	
GENERAL PARAMTER				
Operating Temperature	-10°C to 50°C			
Relative humidity	5% to 95% Relative Humidity（Non-condensing）			
Dimensions D x W x H (mm)	348*270*95		400*300*115	
Net Weight(KG)	4	5	8.5	9
DISPLAY AND COMMUNICATION				
Communication Interface	Standard: Rs232; Optional:CAN&RS485			
Safety standard	EN/IEC 62109-1,EN/IEC 62109-2			

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DIFFERENCE BETWEEN DIFFERENT TYPES OF BATTERIES

Solar Tubular Batteries	AGM SMF Batteries	Lithium Solar Batteries
ADVANTAGES: Durability: They are designed to withstand extreme temperatures and have a longer lifespan compared to other lead-acid batteries. **Low maintenance:** They require less maintenance than other lead-acid batteries. **Cost:** They are generally less expensive than AGM Gel and Lithium batteries. Easy to recycle: They are made using lead, which is a recyclable material.	**ADVANTAGES:** Maintenance-free: They require no maintenance throughout their lifespan. **High energy density:** They have a higher energy density compared to Solar Tubular Lead Acid batteries. **Leak-proof:** They are sealed, which means they are leakproof and can be installed in any orientation.	**ADVANTAGES:** High energy density: They have the highest energy density compared to Solar Tubular Lead Acid and AGM Gel batteries, which means they require less space to store the same amount of energy. **Lightweight:** They are the lightest among the three types of batteries. **Long lifespan:** They have a longer lifespan compared to Solar Tubular Lead Acid and AGM Gel batteries.
DISADVANTAGES: Heavy: They are heavier than AGM Gel and Lithium batteries. **Lower energy density:** They have lower energy density compared to Lithium batteries, which means they require more space to store the same amount of energy.	**DISADVANTAGES:** Expensive: They are more expensive than Solar Tubular Lead Acid batteries. **Sensitive to overcharging:** They are sensitive to overcharging, which can significantly reduce their lifespan.	**DISADVANTAGES:** Expensive: They are the most expensive among the three types of batteries. **Sensitive to temperature:** They are sensitive to high temperatures, which can reduce their lifespan. Difficult to dispose of: They contain toxic materials that can be difficult to dispose of safely.

SOLAR TUBULAR BATTERIES V/S LITHIUM SOLAR BATTERIES

Solar tubular batteries and lithium-ion batteries both have their advantages and disadvantages, and the choice between them depends on various factors such as cost, application, and performance requirements. Here are some benefits of solar tubular batteries over lithium batteries:

Durability: Solar tubular batteries are designed to withstand extreme temperatures, making them more durable than lithium-ion batteries. They are also less susceptible to damage from deep discharges, which can prolong their lifespan.

Low Maintenance: Solar tubular batteries require less maintenance than lithium-ion batteries. They are designed to be more robust and resistant to wear and tear, which means that they can last longer without needing to be replaced.

Cost: Solar tubular batteries are generally less expensive than lithium-ion batteries, making them a more affordable option for many applications. They also have a lower cost of ownership due to their longer lifespan and lower maintenance requirements.

Environmental Impact: Solar tubular batteries are more environmentally friendly than lithium-ion batteries. They are made using lead-acid, which is a recyclable material, and can be recycled at the end of their useful life. Lithium-ion batteries, on the other hand, are more difficult to recycle, and their production requires the extraction of rare and environmentally damaging materials.

Conclusion: However, it's worth noting that lithium-ion batteries have their own benefits. They are lightweight, have a higher energy density, and are more efficient than solar tubular batteries. Ultimately, the choice between the two types of batteries depends on the specific application and the user's preferences and requirements.

Lead Acid Tubular	Tubular Gel	Lithium
Traditional lead-acid batteries use a liquid electrolyte, while tubular gel batteries use a gel electrolyte. Traditional lead-acid batteries are less expensive than tubular gel batteries with a higher lifespan and are well-suited for deep discharge applications. They also require low maintenance, as the liquid electrolyte can evaporate over time, leading to a loss of performance if the electrolyte level is not regularly checked and topped up with distilled water.	Tubular gel batteries are a type of lead-acid battery that use a gel electrolyte instead of a liquid. The gel electrolyte is thicker and more viscous than the liquid electrolyte used in traditional lead-acid batteries, which makes them more resistant to vibration and shock. Tubular gel batteries are also known for their long cycle life and deep discharge capabilities, which make them a popular choice for off-grid solar power applications. Tubular gel batteries are generally less expensive than lithium batteries and are better suited for applications where deep discharges and long cycle life are important. However, they are also heavier and require more maintenance than lithium batteries.	Lithium batteries, on the other hand, use lithium-ion technology to store energy. They are known for their high energy density, which means they can store more energy in a smaller and lighter package than other battery types. Lithium batteries also have a longer lifespan than lead-acid batteries and can be charged and discharged more quickly. This makes them a popular choice for grid-tied solar power systems and for applications where weight and space are at a premium. Lithium batteries are more expensive but offer higher energy density, longer lifespan, and are generally maintenance free. They are better suited for applications where weight and space are at a premium and where fast charging and discharging are important.

COMMON PROBLEMS OF SOLAR TUBULAR BATTERIES AND THE SOLUTION

Solar tubular batteries are commonly used in solar power systems, and some common complaints related to these batteries include:

1. **Short battery life:** If the battery is not maintained properly or is used beyond its recommended capacity, its life span can be considerably shortened.

   Solution- The life of a tubular battery can be affected by various factors, such as improper usage, incorrect charging, and environmental conditions. Here are some solutions to increase the life of a tubular battery:

a. **Use the correct charger:** Make sure to use a charger that is compatible with the tubular battery and has the correct charging specifications. Using an incorrect charger can lead to overcharging or undercharging, which can reduce the battery life.

b. **Monitor charging habits:** Avoid overcharging or undercharging the battery. Follow the manufacturer's recommended charging guidelines to ensure optimal battery performance.

c. **Maintain proper electrolyte levels:** Check the electrolyte level regularly and maintain the proper level. Low electrolyte levels can cause the battery to dry out, which can lead to a shorter battery life.

d. **Keep the battery clean:** Dirt and dust can accumulate on the battery terminals, which can cause a poor connection and reduce the battery life. Clean the battery terminals regularly to maintain proper contact.

e. **Avoid high temperatures:** High temperatures can cause the battery to degrade faster. Store the battery in a cool and dry place to extend its life.

f. **Perform regular maintenance:** Schedule regular maintenance checks to ensure that the battery is in good condition. Replace damaged cells, clean the terminals, and perform other necessary maintenance tasks to prolong the battery life.

   By following these solutions, you can help to extend the life of your tubular battery and ensure optimal performance. If you are unsure about how to maintain your tubular battery, consult a professional for assistance.

2. **Low charging efficiency:** Solar tubular batteries can lose their charging efficiency over time due to sulfation, which occurs when sulfuric acid in the battery reacts with the lead plates.

   Solution- Low charging efficiency in tubular batteries can be caused by sulfation, which is the buildup of lead sulfate crystals on the battery plates. This buildup reduces the battery's ability to hold a charge and can ultimately lead to battery failure. To improve the charging efficiency of a tubular battery, you can try the following solutions:

a. **Equalization charging:** This involves charging the battery at a higher voltage than normal for a short period of time to break down the sulfate crystals and restore the battery's capacity. However, this should be done carefully to avoid overcharging or damaging the battery.

b. **Desulfation devices:** These are electronic devices that use high-frequency pulses to break down the sulfate crystals on the battery plates. They can be connected to the battery during charging to improve the charging efficiency and extend the battery life.

c. **Battery maintenance:** Regular maintenance of the battery, including cleaning the terminals and checking the electrolyte level, can help to prevent sulfation and improve the overall performance of the battery.

d. **Proper usage:** Proper usage of the battery, such as charging it before it reaches a low state of charge and avoiding over-discharging, can help to prevent sulfation and improve the overall performance of the battery.

It's important to note that these solutions may not work for all cases of low charging efficiency in tubular batteries. If the battery is severely damaged or has reached the end of its life span, it may need to be replaced.

3. **Overheating:** If the battery is not installed or used properly, it can overheat and cause damage to the internal components.

Solution- Overheating in a tubular battery can be caused by a number of factors such as overcharging, high ambient temperatures, insufficient ventilation, or a malfunctioning charging system. Overheating can damage the internal components of the battery and can lead to reduced battery life or even failure.

Here are some solutions that can help prevent overheating of a tubular battery:

a. **Proper ventilation:** Ensure that the battery is installed in a well-ventilated area. This will help dissipate heat and reduce the risk of overheating. Avoid placing the battery in an enclosed or confined space.

b. **Temperature regulation:** Keep the battery in a cool and dry location. Avoid exposing the battery to direct sunlight or high ambient temperatures, which can cause the battery to overheat.

c. **Proper charging:** Charge the battery using a charger that is compatible with the battery and follow the manufacturer's recommended charging instructions. Overcharging the battery can cause it to overheat, so it's important to use a charger with the right voltage and current rating.

d. **Maintenance:** Regularly check the battery for signs of damage or corrosion, and clean the terminals to ensure good connectivity. Damaged or corroded terminals can cause the battery to overheat.

e. **Replace the battery:** If the battery is damaged or has reached the end of its life span, it should be replaced to prevent the risk of overheating and other potential hazards.

It's important to note that overheating can be a serious issue and should be addressed promptly to avoid damage to the battery or surrounding equipment.

4. **Leakage:** If the battery is damaged or not maintained properly, it can leak acid, which can damage nearby equipment and pose a safety hazard.

Solution- Leakage in a tubular battery can be caused by damage to the battery casing or terminals, or by overfilling or underfilling the battery with electrolyte solution. Battery leakage can cause damage to the surrounding equipment or pose a safety hazard, so it's important to address the issue promptly.

HERE ARE SOME SOLUTIONS THAT CAN HELP PREVENT BATTERY LEAKAGE:

1. **Proper maintenance:** Regularly check the battery casing and terminals for signs of damage, corrosion, or leakage. Cleaning the terminals and ensuring proper connectivity can also help prevent leakage.
2. **Proper electrolyte level:** Ensure that the battery is filled with the correct amount of electrolyte solution. Overfilling or underfilling the battery can cause leakage, so it's important to follow the manufacturer's recommended guidelines for filling the battery.
3. **Proper installation:** Ensure that the battery is installed in a secure and stable location. Avoid placing the battery in a location where it can be easily knocked over or damaged.
4. **Replace damaged batteries:** If the battery casing or terminals are damaged, or if the battery has reached the end of its life span, it should be replaced promptly to avoid the risk of leakage and other potential hazards.

   It's important to note that battery leakage can be a serious issue and can cause damage to the surrounding equipment or pose a safety hazard. If you notice any signs of leakage from your tubular battery, it's important to address the issue promptly and take appropriate measures to prevent further damage or hazards.

5. **Corrosion:** Corrosion can occur on the battery terminals and connectors, which can affect the performance of the battery and cause it to fail prematurely.

   Solution- Corrosion on the terminals and connectors of a tubular battery can reduce the battery's performance and can lead to premature failure. Corrosion is typically caused by exposure to moisture or high humidity levels, or by a chemical reaction between the battery terminals and the surrounding environment.

   Here are some solutions that can help prevent corrosion on a tubular battery:

a. **Proper maintenance:** Regularly check the battery terminals and connectors for signs of corrosion or damage. Clean the terminals and connectors using a mixture of baking soda and water, and then rinse them thoroughly with clean water. This will help remove any corrosion or buildup on the terminals.

b. **Apply anti-corrosion coating:** Atier cleaning the terminals and connectors, apply an anti-corrosion coating to protect them from moisture and other environmental factors. This coating can help prevent future corrosion and extend the life of the battery.

c. **Proper installation:** Ensure that the battery is installed in a dry and well-ventilated location. Avoid placing the battery in a location where it is exposed to high humidity or moisture.

d. **Use the right tools:** When connecting or disconnecting the battery terminals, use the appropriate tools and ensure that the connections are tight and secure. Loose connections can cause arcing, which can lead to corrosion and damage to the terminals and connectors.

e. **Replace damaged batteries:** If the battery terminals or connectors are severely corroded, or if the battery has reached the end of its life span, it should be replaced promptly to avoid the risk of damage or hazards.

   It's important to note that proper maintenance and care can help prevent corrosion on a tubular battery. If you notice any signs of corrosion or damage on your battery, it's important to address the issue promptly to prevent further damage and maintain the battery's performance.

6. **Voltage fluctuations:** Inconsistent voltage output can occur if the battery is not able to hold a charge properly, which can affect the performance of the connected equipment.

Solution- Voltage fluctuation in a tubular battery can be caused by a variety of factors, including overcharging, undercharging, sulfation, and other issues. Here are some solutions to address voltage fluctuation in a tubular battery:

a. **Check the charging system:** Ensure that the charging system is working properly and providing a consistent charge to the battery. A faulty charger or voltage regulator can cause voltage fluctuations.

b. **Use a battery desulfator:** If sulfation is causing the voltage fluctuation, a battery desulfator can help to break down the sulfation and restore the battery's performance.

c. **Check the electrolyte level:** Make sure that the electrolyte level in the battery is at the appropriate level. Low electrolyte levels can cause voltage fluctuations.

d. **Maintain proper charging habits:** Avoid overcharging or undercharging the battery. Follow the manufacturer's recommended charging guidelines to ensure optimal battery performance.

e. **Replace damaged cells:** If one or more cells in the battery are damaged, it can cause voltage fluctuations. Replace the damaged cells to restore the battery's performance.

f. **Use a voltage stabilizer:** If voltage fluctuations persist, consider using a voltage stabilizer to regulate the voltage and protect the battery from damage.

It is important to address voltage fluctuations promptly to prevent damage to the battery and ensure optimal performance. If you are unsure about how to address voltage fluctuations in your tubular battery, consult a professional for assistance.

To avoid these complaints, it is important to follow the manufacturer's guidelines for installation, maintenance, and usage of the solar tubular battery. Additionally, regular maintenance and monitoring of the battery can help to identify and address any potential issues before they become more serious.

AWARDS & ACCOLADES

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विदेश व्यापार महानिदेशालय

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Two Star Export house

मेसर्स LITHIUM POWER

(आ ई ईसी AQJPP6770F और आयकर पैन AQJPP6770F)

को विदेश व्यापार नीति, 2015-2020 के प्रावधानों के अनुसार दो सितारा निर्यात सदन। का स्तर

प्रदान किया जाता है | यह प्रमाण पत्र, प्रक्रिया पुस्तक(2015-2020) के पैरा 3.20(बी) में दी गयी

शर्तों के निहित 5 वर्षों की अवधि के लिए दिनांक 10/12/2022 से 10/12/2027 तक वैध होगा।

M/s LITHIUM POWER

(IEC AQJPP6770F and Income Tax PAN AQJPP6770F)

are hereby accorded the status of 'Two Star Export house' in accordance with the provisions

of the Foreign Trade Policy, 2015-2020. This Certificate is valid for a period of 5 years

effective from 10/12/2022 to 10/12/2027 subject to the conditions prescribed in

Para 3.20(b) of the Hand Book of Procedures (2015-2020).

तारीख /Date 28/12/2022 SUNIL KUMAR BANSAL

स्थान /Place DELHI Additional DGFT

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