

TANDHAN

TANDHAN
POWER
LIVE LIFE NON-STOP

POWERING HOMES
ENERGIZING LIVES!

TANDHAN

POWERING EXCELLENCE, TRANSFORMING LIVES.

Tandhan Group, with a legacy of more than 4 decades, has always taken on challenges, and being robust, courageous along with using deep customer insights has constantly developed innovative technology. Our greatest strength has been our investment in people and channel partners, enabling us to learn while we worked, building on relationship and collaborations with channel partners based on trust and respect for each other.

- We at Tandhan take great pride in deliverables
- We at Tandhan constantly elevate the level aggressively with pioneering research and development programmes
- We at Tandhan assure highest quality products and services, catering to clients and patrons across the globe

Our Other Verticals

- Tandhan Polyplast Private Limited
- Tandhan Denim
- NX Hotels Private Limited
- Jovee Fine Dining (Dubai)
- Tandhan Power
- Tandhan Impex Private Limited
- FMJ Sarees Private Limited
- Jalan Sarees Private Limited
- Tandhan Fashions Private Limited
- Tandhan Exim Private Limited
- Tandhan Cotton Mills Private Limited

Our Newest Venture

- Dhaka Power Traders (BANGLADESH)
- San Taing Kyaw Company Limited (MYANMAR)
- Global Power Traders (SUDAN)
- Power Global General Trading LLC (DUBAI)
- Rainbow Power Solutions (SOUTH AFRICA)
- Simplified Solar Solutions (KENYA)
- Sustainable Global Power Tech Ltd. (NIGERIA)



Thunder-TP

I N V E R T E R

Product Description

Introducing all-new Tandhan Power's THUNDER-TP Series. A Modern Pure Sine Wave Inverter/UPS range, endowed with first in segment features. The pure Sine Wave output is clean, regulated, completely stable, distortion free and absolutely safe for running the most sophisticated and sensitive modern appliances. Based on advanced/next gen inverter technology, Tandhan Power ensures the highest safety and efficiency in the class.

Product Highlights

- Modern Pure Sine Wave Home Inverter UPS
- Safe for sensitive equipment
- LED multi-information display
- Smart ASIC (auto sense intelligence control) technology optimises charging profile for long battery life
- Best in Class Switchover for Uninterrupted Work and Equipment Protection
- Noiseless Operations
- Battery Charging even at Input Voltage as low as 110V AC



MODEL NAME	1150	1500	1650	2875	4000	5500
Output Capacity (Bulb Load)	720 W	900 W	1200 W	1900 W	2800 W	4000 W
INPUT PARAMETERS						
Battery Input Nominal Voltage (Vdc)	12 V			24 V	48 V	
Main Input Voltage Range (UPS Mode)	180 VAC - 265 VAC ± 5 VAC					
Main Input Voltage Range(Normal Mode)	90 VAC - 280 VAC ± 10 VAC					
BATTERY CHARGING						
Max. Grid Charging Current	11A, 15A (2 modes)	12A, 18A (2 modes)				
MODES						
UPS/NORMAL	Via Switch (Back Side)					
Charging Mode (HC/NC)	Via Switch (Back Side)					
Battery Mode (TT/FT)	Via Switch (Back Side)					
OUTPUT PARAMETERS						
Wave Form Type	PURE SINE WAVE					
Output Frequency	50 Hz ± 0.5 Hz					
Overload Protection	Provided at >100% with Auto Reset					
Low Battery Protection	Provided at ≤ 10.4V (Per Battery) with Auto Reset					
Short Circuit Protection	Provided at ≥ 300% with Manual Reset					
Over Temperature Protection	Provided at ≥ 85deg. C					
CHANGE OVER TIME						
In UPS Mode	≤12 milliseconds					
In Normal Mode	≤50 milliseconds					
BATTERY PARAMETER (PER BATTERY)						
Boost Voltage	TT Mode : 14.6 VDC ± 0.2 VDC			FT Mode : 14.2 VDC ± 0.2 VDC		
Float Voltage	TT Mode : 13.8 VDC ± 0.2 VDC			FT Mode : 13.5 VDC ± 0.2 VDC		
Low Battery Warning	10.6 VDC ± 0.2 VDC					
Low Battery Cut	10.4 VDC ± 0.2 VDC					
ENVIRONMENT						
Forced Cooling	Through Cooling FAN					
Humidity	0-90% Non Condensing					
Operating & Storage Temperature	0-45deg. C					
DISPLAY PARAMETERS						
Display Type	LCD					
Parameters	Mains ON/OFF, Charging/Charged, Back-up ON, Low Battery, Over-load, Short Circuit, Over Temperature, Mains Fuse Blown / MCB Trip					

Note : Specifications and models subject to change without prior notice



SUNMAX

SOLAR INVERTER

Product Description

Introducing the all-new Tandhan Power-Sunmax series.

In a world of me-too-products, you will find Pure Sine Wave' Solar PCU a generation ahead of the entire category. That is because our breakthrough 'chip embedded sine wave' technology delivers the same current as you get from your mains.

Product Highlights

- Sine Wave Output suitable for PC
- DSP Based Intelligent Control Circuit
- DSP Based Smart Charger
- Smarter Overload Senses and Short Circuit Protection
- Battery State Monitoring
- Graphical (LED)/LCD Display (Message and Faults)
- Great Power Saving



MODEL NAME	SUNMAX 1150	SUNMAX 2000	SUNMAX 3500	SUNMAX 5000	SUNMAX 5000
System Rating (VA/W)	900 VA	2000 VA	3500 VA	5 KVA	
Nominal Input Battery Voltage	12V	24V	48V		96V
Solar Charger Rating	40A	50A	60A	80A	50A
INPUT PARAMETERS					
Nominal Input Battery Voltage	12V	24V	48V		96V
Main Input Voltage Range (UPS Mode)	180 VAC - 265 VAC ± 5 VAC				
Main Input Voltage Range(Normal Mode)	100 VAC - 280 VAC ± 15 VAC				
BATTERY CHARGING					
Max. Grid Charging Current to Battery	15A				
Max. Solar Charging Current to Battery	20 A	30 A		25 A	
MODES					
Energy Saver Mode	Via Switch (Front Side Touch Feel)				
Solar Charging Selection Mode	Via Switch (Front Side Touch Feel)				
Grid Charging ON/OFF Mode	Via Energy Saver Modes				
UPS/NORMAL Mode	Via Switch (Front Side Touch Feel)				
OUTPUT PARAMETERS					
Wave Form Type	PURE SINE WAVE				
Output Voltage Regulation	200 VAC ± 10%			200 VAC ± 10%	
Output Frequency	50 Hz ± 0.5 Hz				
Peak Efficiency (with linear load)	≥ 73%	≥ 77%	≥ 80 %		
Distortion (THD)	<3% on linear load				
Overload Protection	Provided at >100% with Auto Reset				
Low Battery Protection	Provided at < 10.4V (Per Battery) with Auto Reset				
Short Circuit Protection	Provided at ≥300% with Manual Reset				
Over Temperature Protection	Provided at ≥85deg. C		Provided at >90deg. C		
CHANGE OVER TIME					
In UPS Mode	≤12 milliseconds				
In Normal Mode	≤50 milliseconds				
BATTERY PARAMETER (PER BATTERY)					
Boost Voltage	14.4 VDC ± 0.2 VDC				
Float Voltage	13.5 VDC ± 0.2 VDC				
Low Battery Cut	10.4 VDC ± 0.2 VDC				
Battery Type	12 V (100AH to 240AH)	12 V (100AH to 300AH)			
SOLAR CHARGE CONTROLLER					
Type	PWM				
Solar Input Voltage range (Vmpp)	15V - 30V	30V-42V	60V-84V		120V - 170V
Max Solar DC Input Voltage (Voc)	37 V	50 V	100 V		200 V
Maximum Solar Array	660 W	1600 W	3500 W	5000 W	6700 W
Max. Solar Current	40A	50A	60A	80A	50A
Charger Efficiency	Uptp 92%				
ENVIRONMENT					
Forced Cooling	Through Cooling FAN				
Humidity	0-90% Non Condensing				
Operating & Storage Temperature	0-45deg. C				
DISPLAY PARAMETERS					
Display Type	Dual Display (LCD & LED)				
Parameters	Solar ON/OFF, Switch On/Off, Main On/Off, Main Fuse Blown / MCB Trip, Load Level Graph, PV Current & Voltage, Warnings & Protections, System Capacity, Energy Saver Mode On/Off, UPS/Normal Mode Status Etc				
Connectivity	Bluetooth / Wifi (Optional)				
MECHANICAL PARAMETERS (WITHOUT PACKING)					
Dimension (LxWxH) mm	275x230x133	265x400x167	315x290x460	410x350x500	

AGM VRLA SEALED MAINTENANCE FREE BATTERY

Features

- › Sealed Maintenance Free
- › Eco Friendly
- › Easy Handling – Easy Installation
- › Extended Cycle Life
- › Excellent Charge Retention & Recovery
- › High Reliability
- › Performance Characteristics confirming to JISC8702
- › Free from Orientation Constraints
- › Minimal Voltage Drop
- › Ready-to-use
- › Low Self Discharge
- › Superior High Rate Discharge
- › Deep Cycle Application

Construction

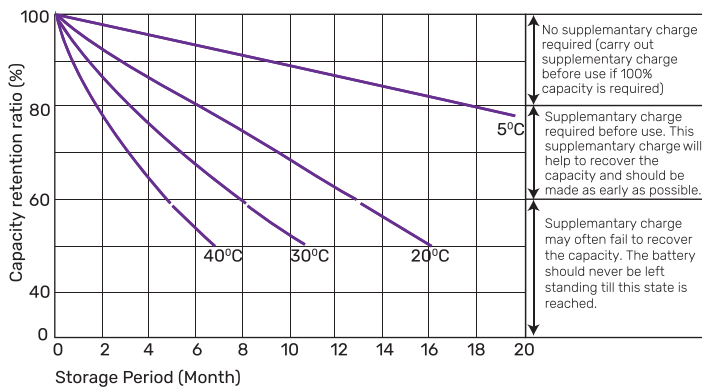
- › Positive and negative plates in lead-tin-calcium alloy
- › Separator - low resistance micro porous glass
- › The electrolyte is absorbed within this material, preventing acid leakage in case of accidental damage
- › Terminals with a large surface area
- › Self regulating pressure relief valve
- › 100% ensured capacity (through Data-logger) during manufacturing
- › Stronger, sturdier & attractive packaging
- › Specially suited for UPS & Power Application

TPMF 200-12 (12V 100AH)**TPMF 100-12 (12V 100AH)****TPMF 150-12 (12V 100AH)**

BATTERY TYPE	NOMINAL VOLTAGE (V)	RATED CAPACITY (AH) AT 27° C								DIMENSIONS (MM)				WEIGHT (KG) ± 5%	INTERNAL RESISTANCE (M-OHM)	MAX DISCHARGE CURRENT (AMPS)
		20 hr 1.75 V/cell	10 hr 1.75 V/cell	5 hr 1.75 V/cell	3 hr 1.75 V/cell	2 hr 1.75 V/cell	90 min 1.75 V/cell	60 min 1.75 V/cell	30 min 1.75 V/cell	Overall height ±3	Height upto lid ± 3	Length ± 2	Width ± 2			
TPMF100-12	12	100	90.0	81.0	75.0	75.0	66.0	55.0	45.0	235	235	407	173	32.8	6	600
TPMF150-12	12	150	135.0	121.5	112.5	112.5	99.0	82.5	67.5	240	240	557	172	45.8	6	900
TPMF200-12	12	200	180.0	162.0	150.0	140.0	132.0	110.0	90.0	240	240	533	250	63.6	5	1200

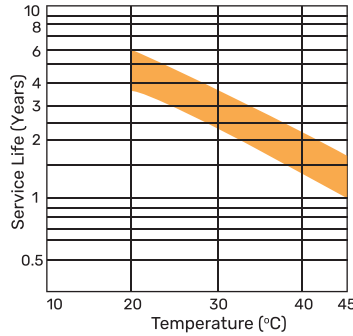
Capacity Retention

Retention of charge of TPMF Series under ideal storage conditions

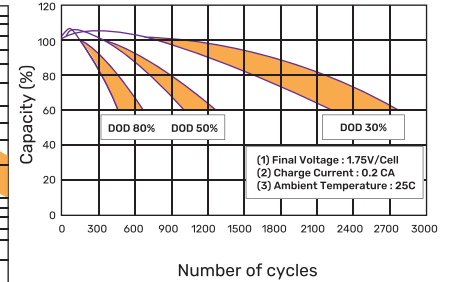


TPMF SERVICE LIFE

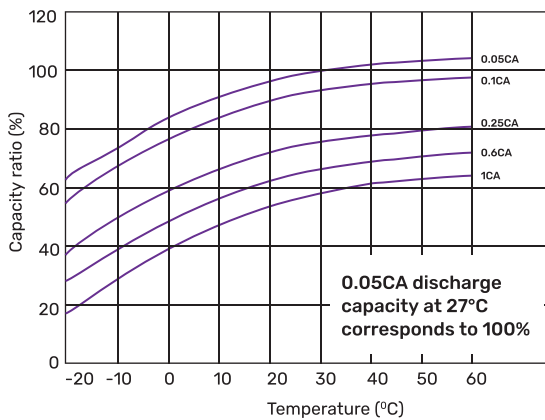
Float Service Life



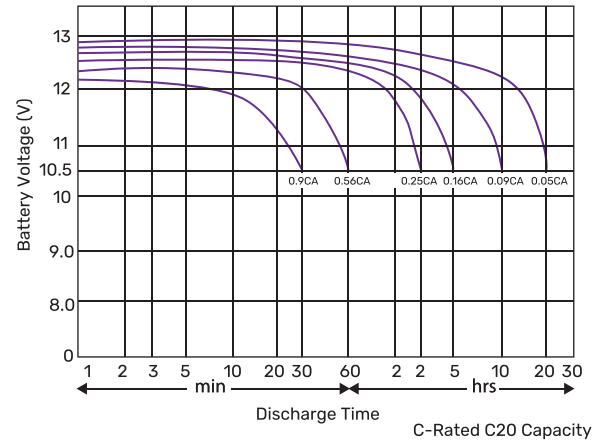
Cycle Service Life



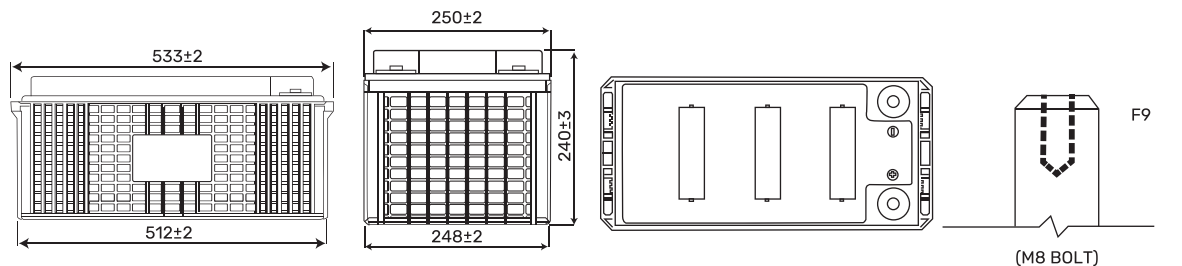
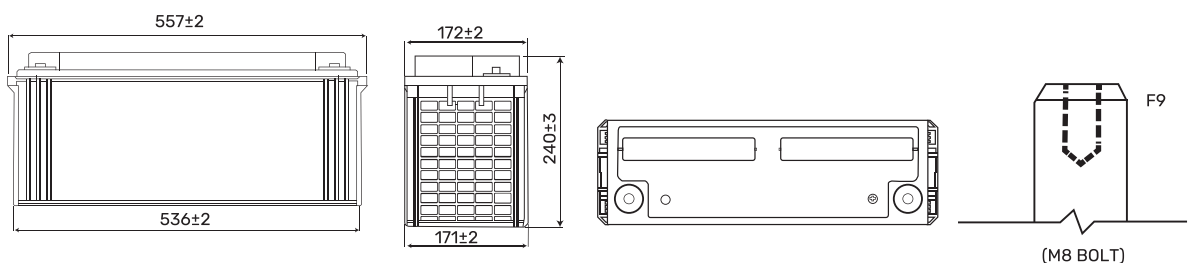
EFFECT OF TEMPERATURE ON CAPACITY



TPMF DISCHARGE CHARACTERISTICS



Battery Outline & Dimensions

TPMF 200-12
(12V 200AH)TPMF 150-12
(12V 150AH)

INVERTER BATTERIES

Product Description

Tandhan Power has 4 models of Tall Tubular Batteries namely: TPTT400, TPTT500, TPTT750 and TPTT850. These next generation tubular batteries, are designed to work smoothly even in high cyclical applications involving frequent and prolonged power outages. Tall Tubular has proved itself under tough conditions, thus earning itself the moniker of - The ultimate inverter battery.

Technological Glimpse

- › Ironclad tubular technology
- › Thick tubular plates ensuring long battery life
- › Inter-cell connections ensure better voltage profile on discharge
- › More electrolyte per ampere-hour
- › Deep cycle design
- › Tower type design efficiency
- › Common side venting
- › Level indicators to check electrolyte

Application

Stores power through Torr Tubular Technology that is customised exclusively for UPS and inverter applications. They have rugged internal elements suited for withstanding frequent and long power outages.



Advantages

- Long life - 1200 cycles @80% DOD
- Due to their toughness and durability, Tandhan Tall Tubular can operate at extreme temperatures
- Electrolyte volume per ampere-hour is 30% more than that of other ordinary batteries
- User friendly with almost no maintenance cost over the life of the battery
- Environmental friendly
- Robust quality
- Manages overcharge efficiently

Specifications

BATTERY TYPE	NOMINAL VOLTAGE (V)	RATED CAPACITY AT 27°C (1.280 SQ.GR) (AH)	DIMENSIONS (IN MM)			WEIGHT(KG) +/-5%		VOLUME OF ELECTROLYTE (LITRES)	INITIAL CHARGE MINIMUM INPUT (AH)	INITIAL CHARGE AT CONSTANT CURRENT (A)		CONSTANT POTENTIAL LIMITING CURRENT (AMPS)	TRICKLE CHARGE (CURRENT IN MA)	
			Overall Height +/-5	'L' +/-3	'W' +/-3	Dry	Filled			Start (upto 2.36 vpc)	Finish (upto 2.75 vpc)		Max	Min
TPTT 400	12	115	416	500	187	29.00	53.80	20.28	450	12.0	6.0	25	100	400
TPTT 500	12	150	416	500	187	33.77	59.81	20.58	540	14.4	7.2	30	120	480
TPTT 750	12	200	416	500	187	41.44	66.66	19.80	810	21.6	10.8	45	190	720
TPTT 850	12	230	416	500	187	51.20	75.42	21.00	900	24.0	12.0	45	200	800

*The height mentioned is up to terminal top.

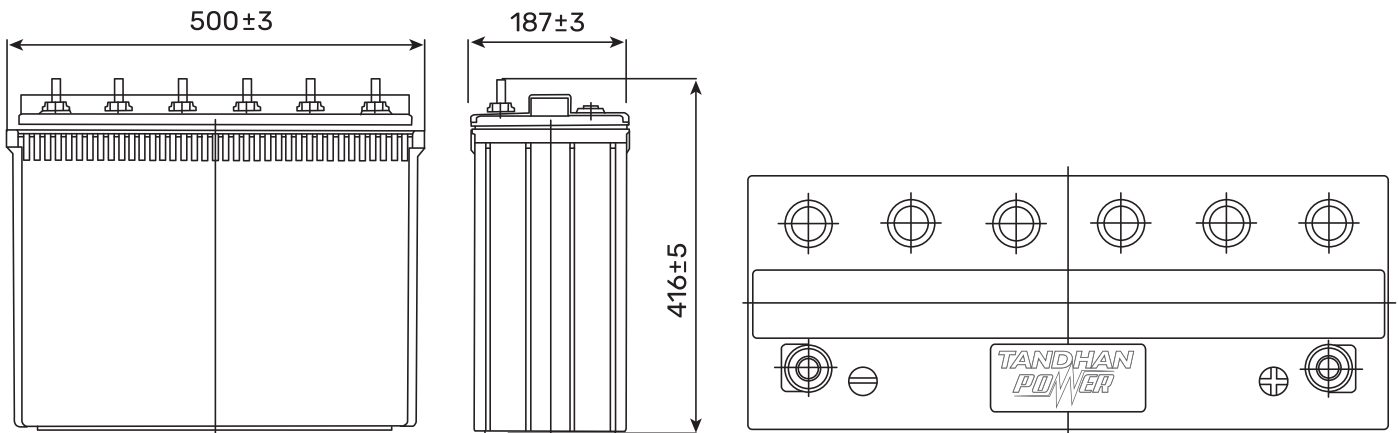
Product Description

Filling in Specific Gravity	1.220 +/-0.005 at 27°C
Rest Period	12 hrs.
Minimum Ah Input	450Ah for TPTT 400, 540Ah for TPTT 500 and 810Ah for TPTT 750
In order to reduce the charging time, the following routine may be adopted. For TPTT400 the initial charging current may be 12A up to 2.36 vpc followed by 6A up to 2.75 vpc. For TPTT500, the initial charging current may be 14.4A up to 2.36 vpc followed by 7.2A upto 2.75 vpc. For TPTT750, the initial charging current may be 21.6A up to 2.36 vpc followed by 10.8A up to 2.75 vpc. However in both cases, minimum Ah input to be given. Under no circumstances, battery temperature should exceed 50°C. In case the temperature exceeds 50°C, adequate rest to be given till the electrolyte temperature comes to ambient temperature charging to be continued.	
Conditions of fully charged	a) 3 consecutive hourly readings of specific gravity and voltage become constant b) Top of charge voltage will be around 16.2V-16.5V c) All cells should gas freely d) Minimum Ah has been given
Specific Gravity at fully charged condition	1.250 +/-0.005 at 27°C

NORMAL RECHARGING INSTRUCTIONS

Recharging through inverter at constant potential mode of 14.4V with limited current as specified. After battery potential reaches 14.4V, the battery should continue in trickle charge mode at constant potential of 13.5V.

Battery Outline



Discharge Data AMPS at 27°C

ECV	TPPT 400										
	1H	2H	3H	4H	5H	6H	7H	8H	9H	10H	20H
1.70	47.0	31.0	23.6	19.0	16.4	14.7	13.4	12.0	11.0	10.2	10.2
1.75	45.6	30.4	23.1	18.8	16.1	14.5	13.2	11.8	10.9	10.0	10.0
1.80	39.7	27.8	21.5	17.9	15.4	13.9	12.6	11.4	10.5	9.5	9.5
1.85	32.1	23.8	19.2	16.4	14.2	12.6	11.3	10.6	9.8	9.1	9.1

ECV	TPPT 500										
	1H	2H	3H	4H	5H	6H	7H	8H	9H	10H	20H
1.70	56.4	37.2	30.4	22.8	19.7	17.7	16.0	14.4	13.2	12.2	7.6
1.75	54.7	36.5	27.8	22.5	19.1	17.4	15.9	14.2	13.1	12.0	7.5
1.80	47.6	33.4	25.8	21.5	18.5	16.7	15.1	13.7	12.6	11.4	7.1
1.85	38.5	30.5	23.0	19.7	17.0	15.1	13.6	12.7	11.8	10.9	6.8

ECV	TPPT 500										
	1H	2H	3H	4H	5H	6H	7H	8H	9H	10H	20H
1.70	84.6	55.8	42.5	34.2	29.5	26.6	24.1	21.5	19.8	18.4	10.2
1.75	82.1	54.7	41.7	33.8	29.0	26.1	23.8	21.3	19.7	18.0	10.0
1.80	71.4	50.0	38.7	32.2	27.7	25.1	22.7	20.5	19.0	17.1	9.5
1.85	57.8	40.8	34.5	29.5	25.5	22.6	20.4	19.0	17.7	16.4	9.1

Product Details

Ampere-hour Efficiency	> 90%
Watt-hour Efficiency	> 75%
Operating Temperature Range	-5° C to 45° C
Self Discharge/Month at 27° C	Self discharge rate of the battery when kept in open circuit condition for 28 days would be <10% of its initial capacity.
Type of Plates	Positive Plates: Tubular Material: Lead - Antimony Alloy Negative Plates: Flat Pasted Material: Lead - Antimony Alloy
Separators	Micro Porous Polyethelyene (PE)
Type of Vent and Filling Plugs	Micro Porous Ceramic Vent Plug
Material of Container and Lid	PPCP
Type of Sealing	Heat Sealing
Terminal	Take off type

Battery Selection Chart

ELECTRICAL LOAD	SYSTEM VOLTAGE	RECO. INVERTER RATING	RECOMMENDED BATTERY FOR DIFFERENT BACK-UP TIME				
			5hrs	4hrs	3hrs	2hrs	1hrs
4 Tubes + 4 fans	12	650 VA	2P TPTT750	2P TPTT500	2P TPTT400	TPTT750	TPTT400
4 Tubes + 4 fans +1 TV	12	850 VA	3P TPTT750	2P TPTT750	2P TPTT750	2TPTT7500	TPTT750
4 Tubes + 9 fans + 1 TV	24	1450 VA	2SX2P TPTT750	2SX2P TPTT750	2SX2P TPTT500	2S TPTT750	2S TPTT500

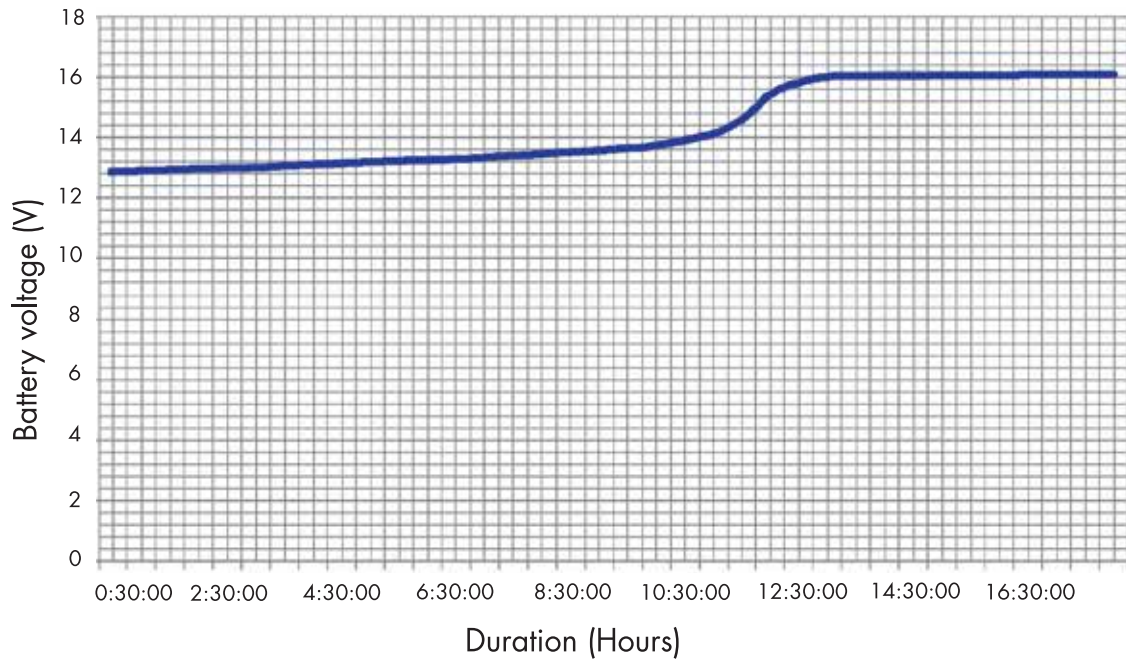
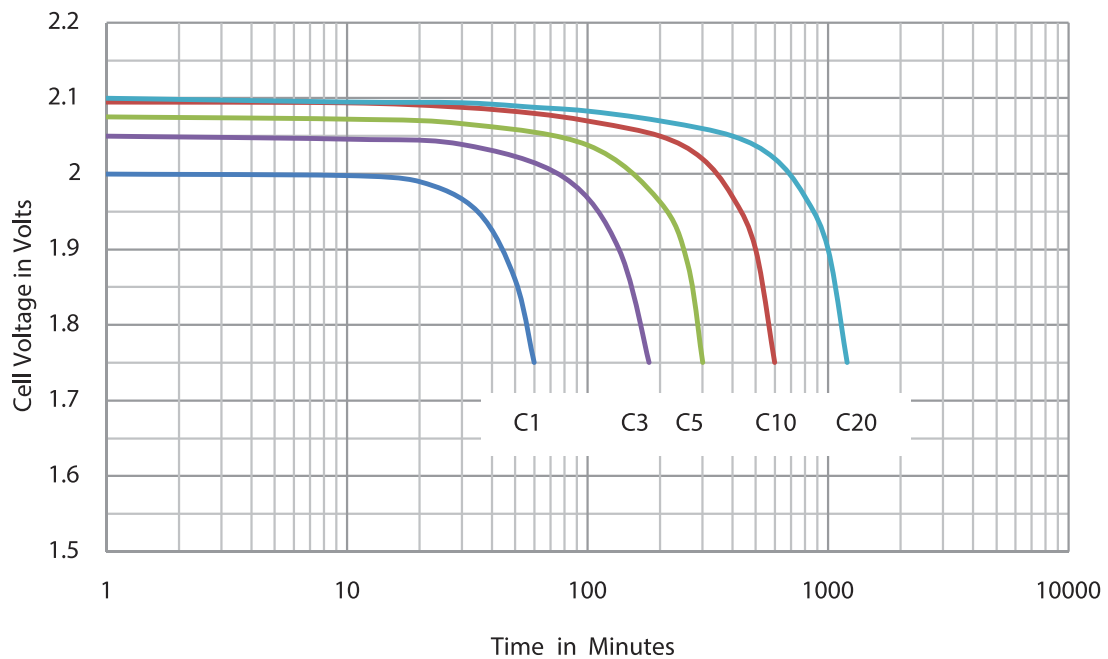
NOTE: If the limit current of one battery is 'A' amp, for 'N' no. batteries in parallel, the limit current for charging of inverter should be Axamp. Otherwise there will be problem during charging in parallel connection. This point should be taken in consideration before putting batteries in parallel combination.

S-Series connection; P- Parallel connection.

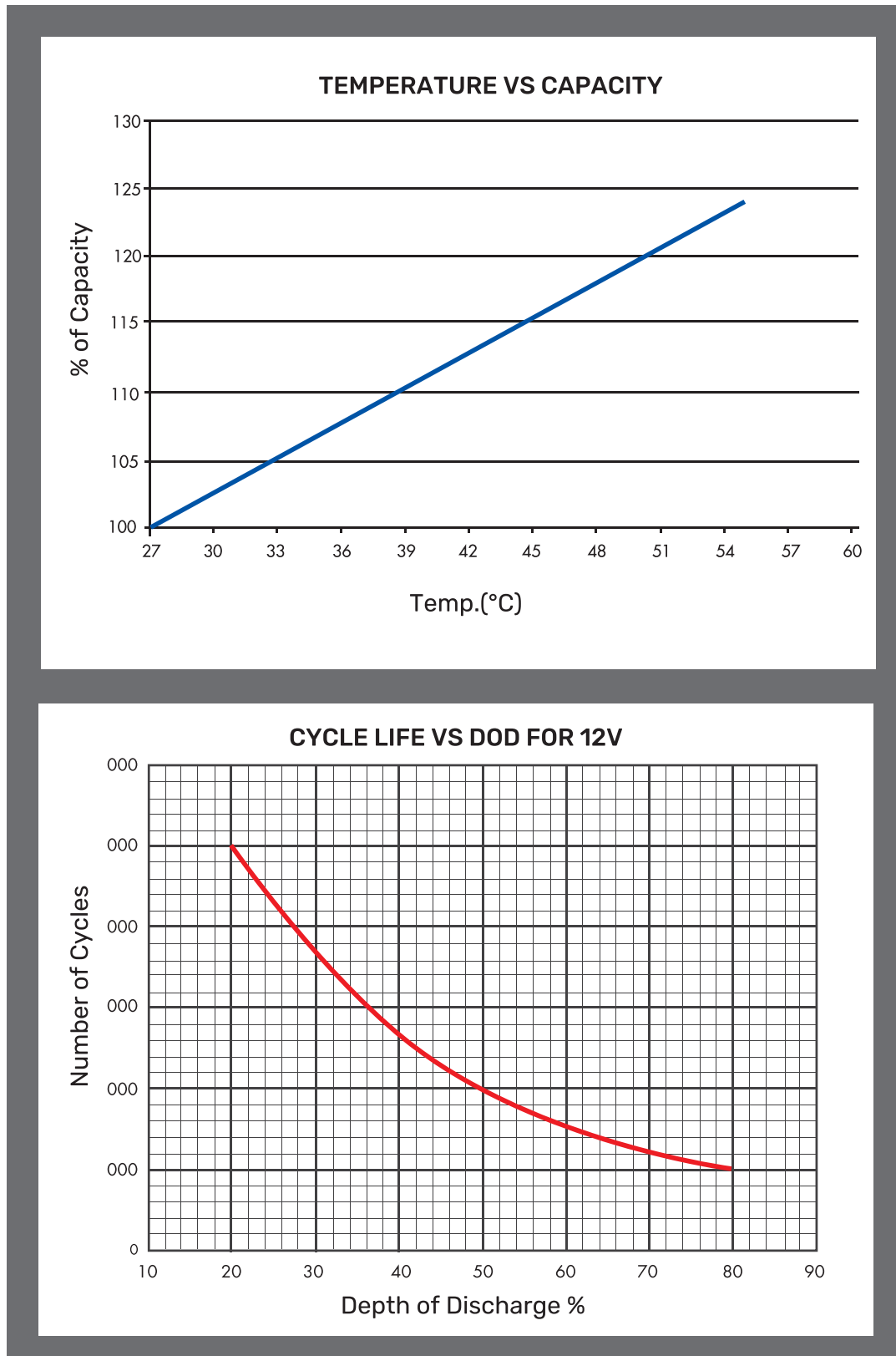
25 X 3P = A string containing 2 nos. batteries in series and 3 nos. such strings in parallel.

Statutory notice:

All batteries contain lead, which is harmful for humans and environment. As per statutory requirements, the used battery must be returned to the authorised dealer, manufacturer or to the designated collection centres.

Characteristic Curves**CHARGE CHARACTERISTIC GRAPH****PERFORMANCE CURVES AT DIFFERENT RATES OF DISCHARGE**

Technical Specifications are subject to change without prior notice.

Characteristic Curves

Battery image shown is indicative and may vary from the actual

LEAD ACID BATTERY

State of charge measurement of OCV @ 27°C

STATE OF CHARGE	SPECIFIC GRAVITY	VOLTAGE(V)
100%	1.255	12.6
75%	1.235	12.48
50%	1.220	12.39
25%	1.200	12.27
0%	1.175	12.12

DOD CYCLE

100% DOD:800 Cycles
80% DOD:1500 Cycles
50% DOD:1800 Cycles
20% DOD:2500 Cycles

INDUSTRIAL COMPLIANCE

ISO 9001:2015
ISO 14001:2015
ISO 27001:2013
ISO 45001:2018
ISO 50001:2018

Model TP-Royal (12V 230AH@C20)



Specifications

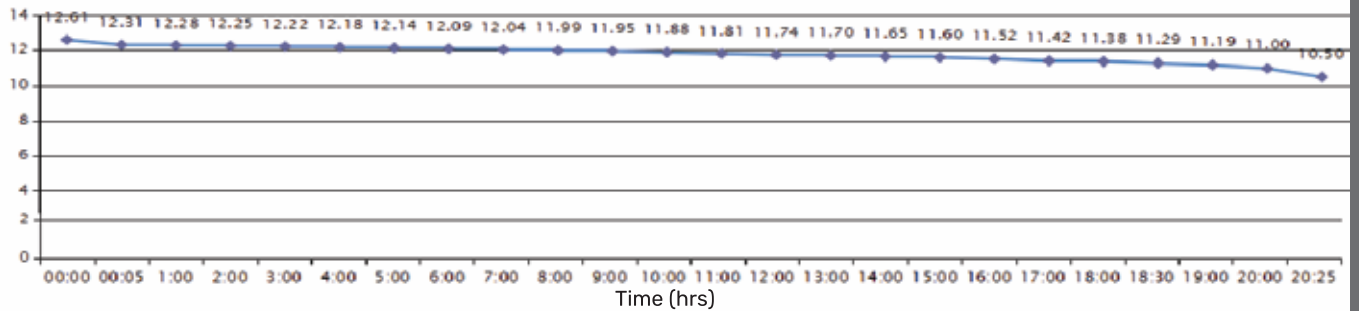
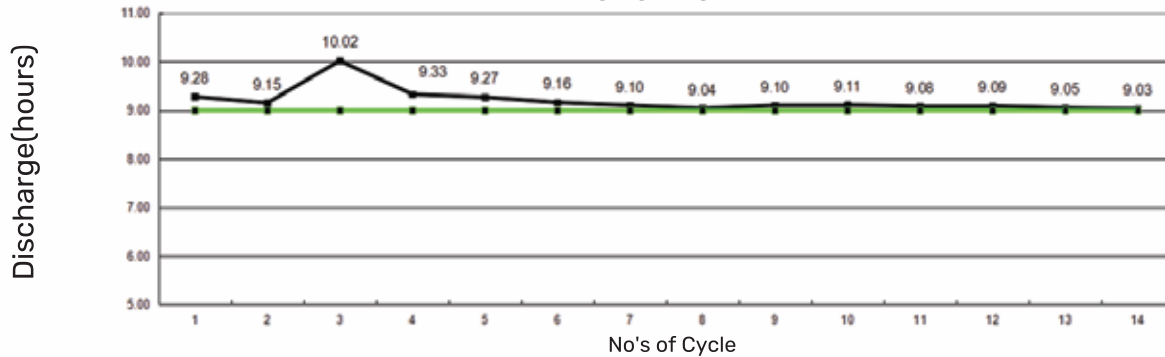
Cells Per Unit	6
Voltage Per Unit	12
Capacity	230Ah@20hr-rate to 1.75V per cell @27°C
Net Weight	64.8(+/-1)kg
Gross Weight	67 (+/-1.5)kg
Operating Temperature Range	Discharge: 5°C -50°C
	Charge: 5°C -50°C
	Storage: 5°C -50°C
Normal Operating Temperature Range	27±2°C
Float Charging Voltage	13.6 to 13.8 VDC/unit Average at 27°C
Recommended Maximum Charging Current	10% of Battery Rated Capacity
Equilization and Cycle Service	14.6 to 14.8 VDC/unit Average at 27°C
Self Discharge	Tandhan Power Lead Storage batteries can be stored for 3 months at 27°C. Self-discharge ratio
Terminal	Positive & Negative Terminal (Lead Alloy)
Container Material	PPCP

BATTERY TESTING PARAMETER

Backup Time (On 400W with Inverter 900VA)	255 minute @ 27°C to 10.50V
Rated Capacity at 12A@C20	230Ah @27°C to 10.50V
Rated Capacity at 21.12A@C10	213Ah @27°C to 10.50V
Rated Capacity at 35.18 A @C5	177Ah @ 27°C to 10.50V

DIMENSIONS

Unit:mm	Dimension: 502(L) x 188(W) x 402(H)
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C20 DISCHARGE CURVE**LIFE CYCLE CHART**

Batteries

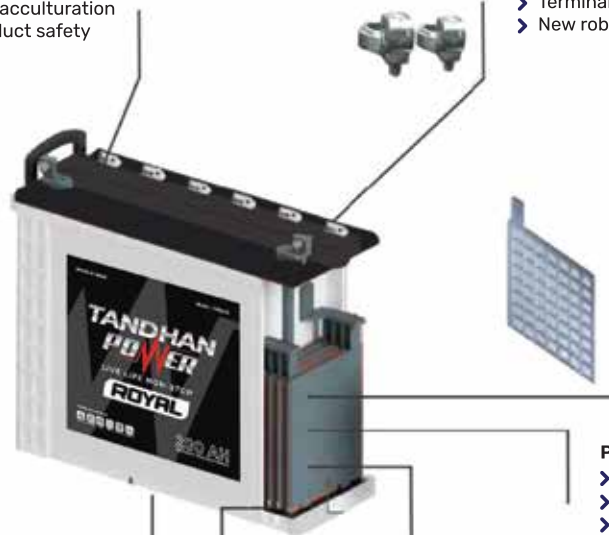
TUBULAR BATTERY INTERNAL CLASSIFICATION

Top Ventilation for Safe Charging

- Easy gas release during charging
- Reduce gas accretation
- Greater product safety

Modern Terminal Design

- Prevents from external short circuit
- Terminal orientation Changes
- New robust design first time in the industry



Robust Grid Design

- With special additives

PV Envelop Separator

- A Perfect separation medium
- Enhances Decimation Resistance
- Increase product life

High Purity Lead

- Higher cycle time
- Low self discharging rate
- Low topping up

Thicker Plate

- For Extra Life

Deep Cycle

- Flat negative plate with special additives
- Expanders for better charge
- Deeper discharge cycle

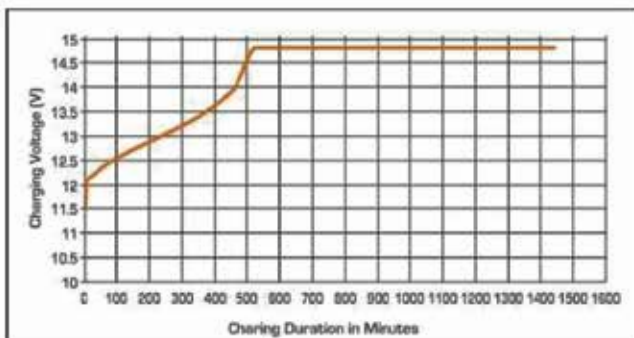
MODERN TERMINAL DESIGN



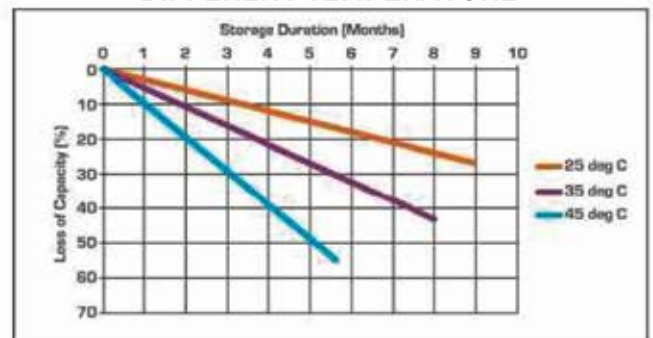
Terminal Configuration :-

Terminal Type :-L
Terminal Height:- 31 mm
Torque Value:- 8-10 N.m
Bolt Type :- M8

CHARGING PROFILE



SELF DISCHARGE CHARACTERISTICS @ DIFFERENT TEMPERATURE



STATE OF CHARGE MEASURE OF OPEN-CIRCUIT VOLTAGE @ 27°C

STATE OF CHARGE	SPECIFIC GRAVITY	VOLTAGE
100%	1.255	12.6
75%	1.24	12.51
50%	1.235	12.48
25%	1.225	12.42
0%	1.215	12.36

LEAD ACID BATTERY

State of charge measurement of OCV @ 27°C

DOD CYCLE

100% DOD:800 Cycles
80% DOD:1500 Cycles
50% DOD:1800 Cycles
20% DOD:2500 Cycles

INDUSTRIAL COMPLIANCE

ISO 9001:2015
ISO 14001:2015
ISO 27001:2013
ISO 45001:2018
ISO 50001:2011

Model TRP200 (12V 200 AH @C20)



Specifications

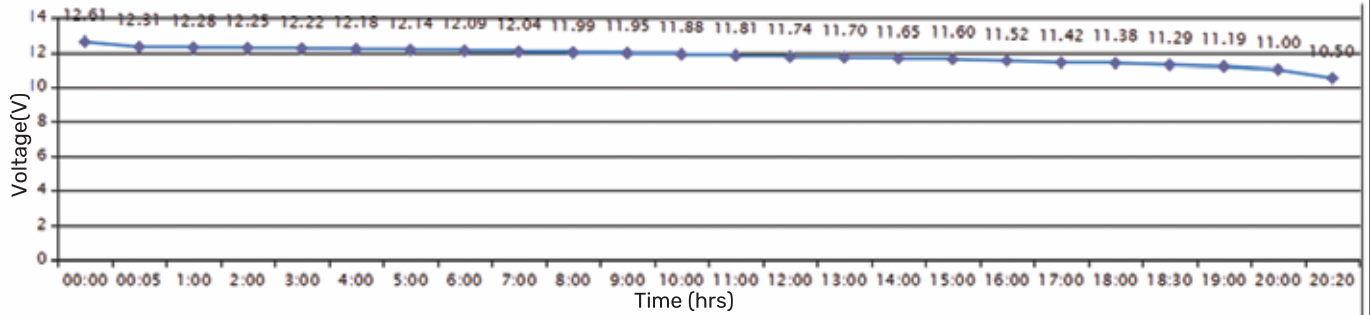
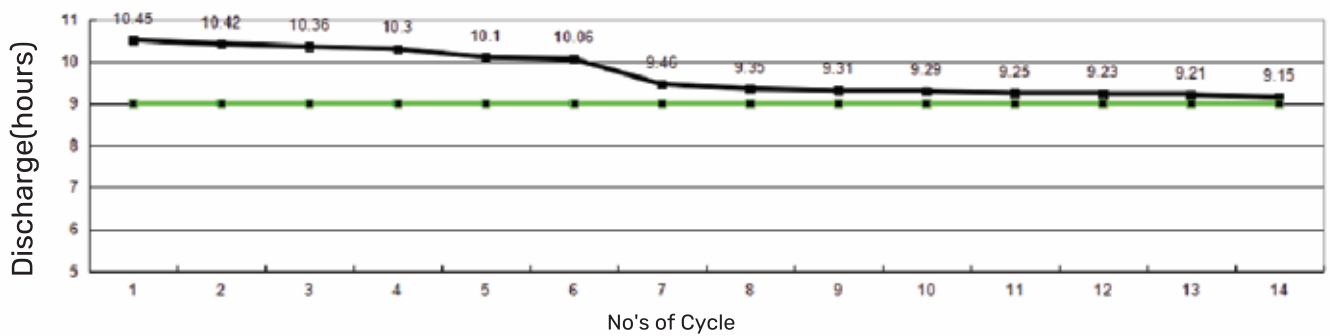
Cells Per Unit	6
Voltage Per Unit	12
Capacity	200Ah@20hr-rate to 1.75V per cell @27°C
Net Weight(KG +/-3%)	61.8
Gross Weight(KG +/-3%)	64
Operating Temperature Range	Discharge: 5°C ~ 50°C
	Charge: 5°C ~ 50°C
	Storage: 5°C ~ 50°C
Normal Operating Temperature Range	27±2°C
Float Charging Voltage	13.6 to 13.8 VDC/unit Average at 27°C
Recommended Maximum Charging Current	10% of Battery Rated Capacity
Equilization and Cycle Service	14.6 to 14.8 VDC/unit Average at 27°C
Self Discharge	Genus Lead Storage batteries can be stored for 3 months at 27°C. Self-discharge ratio less than 1% per month at 27°C. Please charge batterie before using.
Terminal	Positive & Negative Terminal (Lead Alloy)
Container Material	PPCP

BATTERY TESTING PARAMETER

Backup Time (On 400W with Inverter 900VA)	240 minute @ 27°C to 10.50V
Capacity test result according to 12V 200 AH@C20	
Rated Capacity at 10A@C20	200Ah @ 27°C to 10.50V
Rated Capacity at 17.6A@C10	178Ah @ 27°C to 10.50V
Rated Capacity at 29.32A@C5	148Ah @ 27°C to 10.50V

DIMENSIONS

Unit:mm	Dimension: 502(L) x 188(W) x 402(H)
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C20 DISCHARGE CURVE**LIFE CYCLE CHART**

LEAD ACID BATTERY

State of charge measurement of OCV @ 27°C

Model TPR220 (12V 220 AH @C20)

INDUSTRIAL COMPLIANCE

ISO 9001:2015
ISO 14001:2015
ISO 27001:2013
ISO 45001:2018
ISO 50001:2018



Specifications

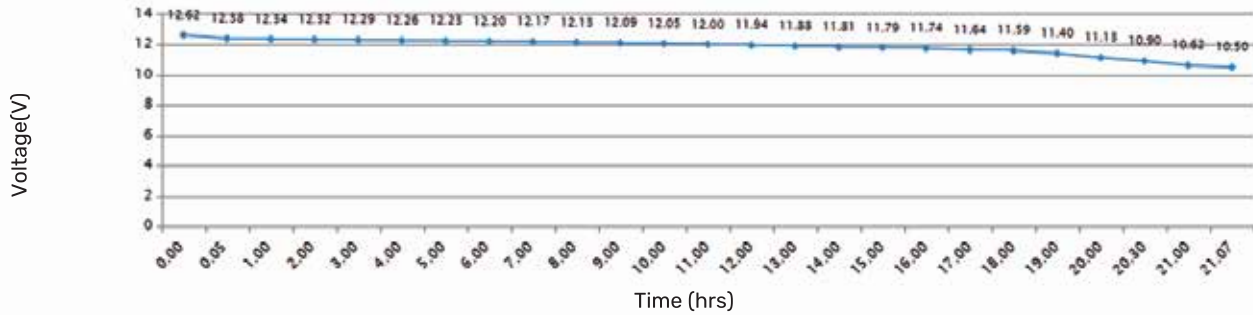
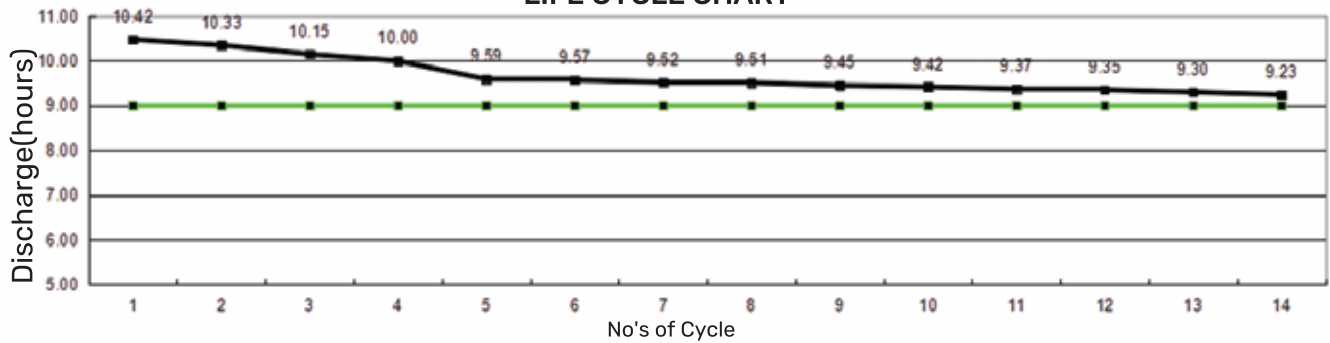
Cells Per Unit	6
Voltage Per Unit	12
Capacity	200Ah@20hr-rate to 1.75V per cell @27°C
Net Weight(KG +/-3%)	64.5
Gross Weight(KG +/-3%)	66
Operating Temperature Range	Discharge: 5°C ~ 50°C
	Charge: 5°C ~ 50°C
	Storage: 5°C ~ 50°C
Normal Operating Temperature Range	27±2°C
Float Charging Voltage	13.6 to 13.8 VDC/unit Average at 27°C
Recommended Maximum Charging Current	10% of Battery Rated Capacity
Equilization and Cycle Service	14.6 to 14.8 VDC/unit Average at 27°C
Self Discharge	Tandhan Power Lead Storage batteries can be stored for 3 months at 27°C. Self-discharge ratio less than 1% per month at 27°C. Please charge battery before using.
Terminal	Positive & Negative Terminal (Lead Alloy)
Container Material	PPCP

BATTERY TESTING PARAMETER

Backup Time (On 400W with Inverter 900VA)	270 minute @ 27°C to 10.50V
Capacity test result according to 12V 220 AH@C20	
Rated Capacity at 11A@C20	220Ah @ 27°C to 10.50V
Rated Capacity at 19.36A@C10	199Ah @ 27°C to 10.50V
Rated Capacity at 32.25A@C5	165Ah @ 27°C to 10.50V

DIMENSIONS

Unit:mm	Dimension: 502(L) x 188(W) x 402(H)
---------	-------------------------------------

C20 DISCHARGE CURVE**LIFE CYCLE CHART**

LEAD ACID BATTERY

Product Description

Tandhan Power range of Tubular Batteries are customized exclusively for Home UPS and Inverter Application. Tandhan Power Represents an assortment of Tubular Inverter Batteries that are high on Technology, Performance and Service Quality.

Features

- › Longer Cycle Life
- › Low Self Discharge Rate
- › Efficient Deep Discharge Recovery
- › Wide Operating Temperature Range



Plate Technology

- › Tubular Plates are made with High Pressure Die Casting Machines , ensures Low Spine corrosion and Longer service Life.
- › Tubular Plates with Gauntlets, made of special fabric having ultra-fine pores and high permeability to ensure higher backup and longer life.
- › Super TUFF grid design with double sided pasting ensures longer battery life.

BATTERY	Flooded Tubular			
VOLTAGE	12V			
CAPACITY @C ₂₀	230			
MATERIAL	Polypropylene			
DIMENSIONS (mm) Tolerance: ± 3 mm	Length	Width	Height (Up to cover)	Overall Height (up to terminal)
	505	190	398	410
BATTERY WEIGHT (±3%)	63.2			
GROSS WEIGHT (±3%)	65.2			

Product Height

HIGHEST PURITY ELECTROLYTE

- Highest purity CP grade Sulphuric Acid for increased storage life.

NAM WITH ACTIVE CARBON

- Increased reaction surface area for higher backup.
- Optimized Negative paste recipe for fast charge acceptance

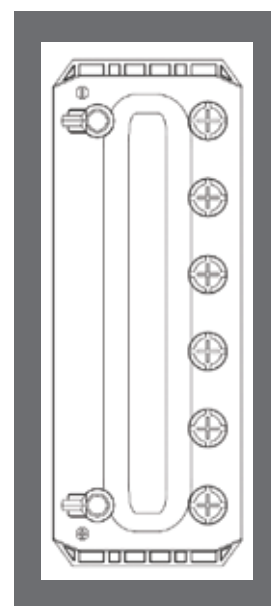
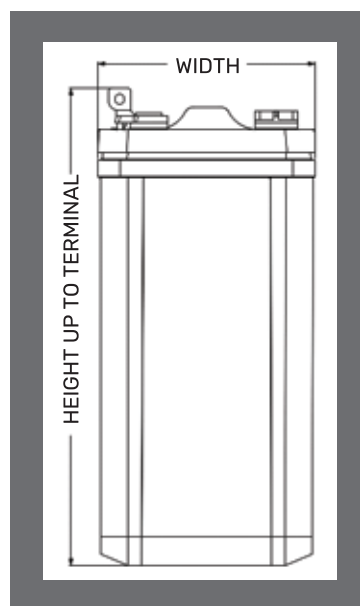
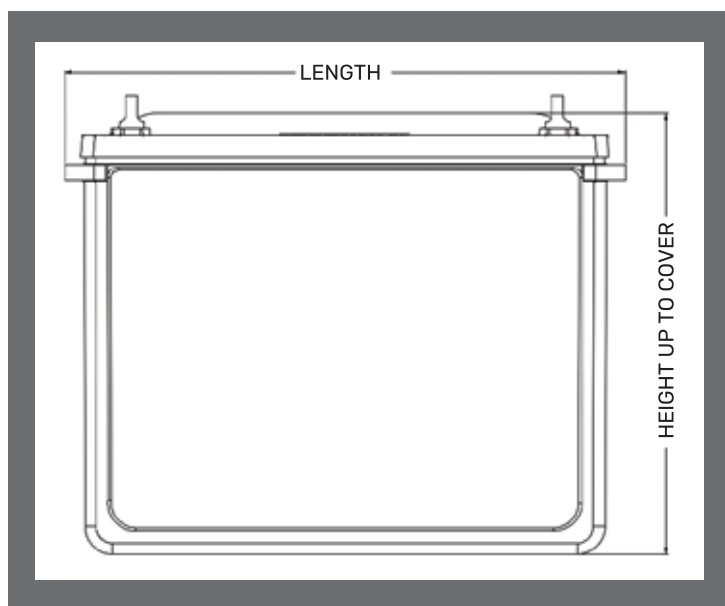
CERAMIC VENT PLUGS

- Special Ceramic vent plugs for controlled acid fumes

HIGH GRADE IMPORTED SEPARATOR

- Less Electrical resistance, high oxidation resistance, high porosity, high charging efficiency.

Battery Dimensions



CHARGING INSTRUCTIONS

BOOST CHARGING (Amp)		TRICKLE MODE (mAmp)	
STARTING RATE	FINISHING RATE	MINIMUM	MAXIMUM
22.2	11.1	185	739

CHARGE CHARACTERISTICS (27°C)

Cycle Use	Standby Use
14.40-15.0V (-40mV/°C), Maximum Current 30A	13.60-13.80V (-20mV/°C)

* Battery to be recharged in CCCV mode only.

CONSTANT POWER DISCHARGE PERFORMANCE**

MAXIMUM BACKUP DURATION (HH:MM)				
500 W	400 W	300 W	200 W	100 W
03:45	05:30	07:30	12:30	26:00

**All test data are based on stabilized battery capacity on new battery & under controlled laboratory test conditions.

CONSTANT CURRENT DISCHARGE PERFORMANCE**
CAPACITY AMP-HOUR (Ah)

$C_{20}@10.5V$	$C_{10}@10.8V$	$C_5@10.8V$	$C_3@10.8V$	$C_2@10.8V$	$C_1@10.5V$
230	202	169	145	128	101

**INTERNAL
RESISTANCE**

8 mΩ

**All data are based on stabilized battery capacity on new battery & under controlled laboratory test conditions.

CHARGING TEMPERATURE COMPENSATION
ADD

 0.005Volt per cell for every 1°C below 25°C
 0.0028Volt per cell for every 1°F below 77°F

SUBTRACT

 0.005Volt per cell for every 1°C above 25°C
 0.0028Volt per cell for every 1°F above 77°F

OPERATIONAL DATA
OPERATIONAL DATA

-4°F to 113°F (-20°C to + 45°C). At temperatures below 32°F (0°C) maintain a state of charge greater than 60%

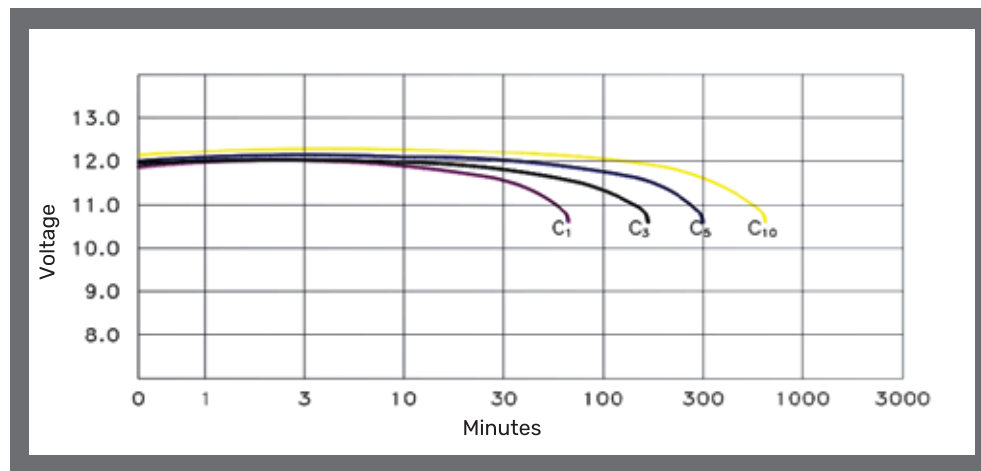
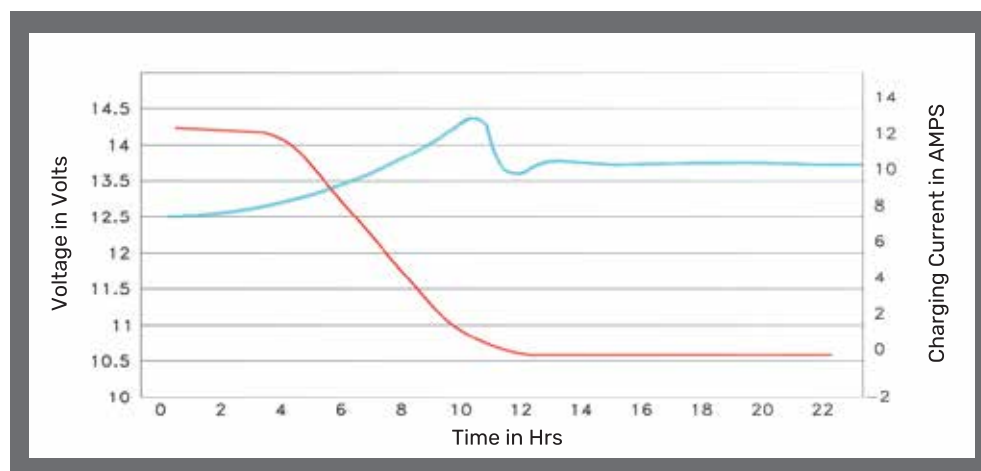
 C_{10} capacity correction formula at 27°C

$$\text{Capacity at } 27^\circ\text{C} = \frac{C_t + C_{10} \times 0.43 \times (27 - t)}{100}$$

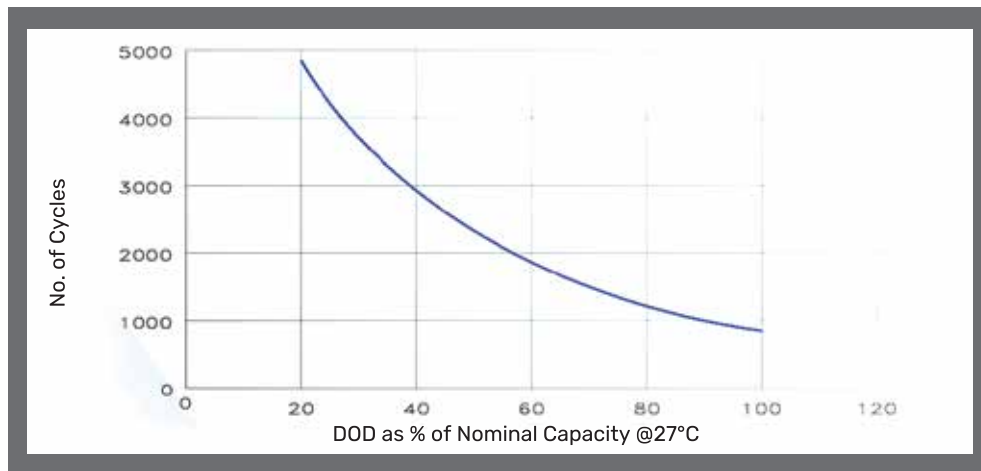
SELF DISCHARGE

Less than 3% per month at 20°C temperature conditions.

 C_t - Observed Capacity at t°C
 t - Actual test Temperature

Discharging Characteristics at various rates @27°C

Charging Characteristics


DOD Vs Cycle Life



Disclaimer: Specification may change due to continual improvement and change in product design.

HIGH FREQUENCY INVERTER

Features

- › Pure sine wave
- › Power factor 1.0
- › PV input 500VDC Max
- › Built-in MPPT 100A
- › Capable to work without battery
- › Detachable dust cover for harsh environment
- › Support multiple output priority: UTL, SOL, SBU, SUB
- › EQ function to optimize battery performance and extend lifecycle

HESS-OF-E-3.5K



Specifications

Capacity	3.5KVA/3.5KW
INPUT	
Nominal Voltage	230VAC
Acceptable Voltage Range	170-280VAC(For Personal Computer); 90-280VAC(For Home Appliances)
Frequency	50/60 Hz(Auto Sensing)
OUTPUT	
Nominal Voltage	220/230VAC±5%
Surge Power	7000VA
Frequency	50/60Hz
Waveform	Pure Sine Wave
Transfer Time	10ms(For Personal Computer); 20ms(For Home Appliances)
Peak Efficiency(PV to INV)	96%
Peak Efficiency(Battery to INV)	93%
Overload Protection	5s@≥150% load; 10s@110%~150% load
Crest Factor	3:1
Admissible Power Factor	0.6~1(Inductive or Capacitive)
BATTERY	
Battery Voltage	24VDC
Floating Charge Voltage	27VDC
Over Charge Protection	33VDC
Charging Method	CC / CV
SOLAR CHARGER & AC CHARGER	
Solar Charger Type	MPPT
Max.PV Array Power	4000W
Max.PV Array Open Circuit Voltage	500VDC
PV Array MPPT Voltage Range	120VDC~450VDC
Max.Solar Input Current	15A
Max.Solar Charge Current	100A
Max.AC Charge Current	60A
Max.Charge Current	100A

PHYSICAL	
Dimensions, D*W*H(mm)	448 x 295 x 121
Package Dimensions, D*W*H(mm)	560 x 375 x 190
Net Weight(Kg)	7
Communication Interface	USB / RS232 / Dry-contact
ENVIRONMENT	
Operating Temperature Range	(-10°C ~ 50°C)
Storage Temperature	(-15°C ~ 50°C)
Humidity	5% to 95% Relative Humidity (Non-condensing)

HIGH FREQUENCY INVERTER

Features

- Pure sine wave
- Power factor 1.0
- Pv input voltage 30VDC~160VDC
- Built-in MPPT 60A
- Detachable dust cover for harsh environment
- Support multiple output priority: UTL, SOL, SBU
- Compatible work with LiFePO4 battery via RS485
- Lithium battery activation function, which can be triggered by mains or PV

HESS-OF-L-3.5K



Specifications

Capacity	3.5KVA/3.5KW
Parallel Capability	NO
INPUT	
Nominal Voltage	230VAC
Acceptable Voltage Range	170-280VAC(For Personal Computer); 90-280VAC(For Home Appliances)
Frequency	50/60 Hz(Auto Sensing)
OUTPUT	
Nominal Voltage	220/230VAC±5%
Surge Power	7000VA
Frequency	50/60Hz
Waveform	Pure Sine Wave
Transfer Time	10ms(For Personal Computer); 20ms(For Home Appliances)
Peak Efficiency(PV to INV)	96%
Peak Efficiency(Battery to INV)	93%
Overload Protection	5s@≥150% load; 10s@110%~150% load
Crest Factor	3:1
Admissible Power Factor	0.6~1(Inductive or Capacitive)
BATTERY	
Battery Voltage	24VDC
Floating Charge Voltage	27.4VDC
Over Charge Protection	33VDC
Charging Method	CC / CV
SOLAR CHARGER & AC CHARGER	
Solar Charger Type	MPPT
Max.PV Array Power	1500W
Max.PV Array Open Circuit Voltage	160VDC
PV Array MPPT Voltage Range	30VDC~145VDC
Max.Solar Input Current	15A
Max.Solar Charge Current	60A
Max.AC Charge Current	60A
Max.Charge Current	120A

PHYSICAL	
Dimensions, D*W*H(mm)	358x295x105
Package Dimensions, D*W*H(mm)	465x380x175
Net Weight(Kg)	7
Communication Interface	RS232 or RS232/RS485 Optional
ENVIRONMENT	
Operating Temperature Range	(-10°C ~ 50°C)
Storage Temperature	(-15°C ~ 50°C)
Humidity	5% to 95% Relative Humidity (Non-condensing)

HIGH FREQUENCY INVERTER

Features

- Pure sine wave
- Power factor 1.0
- Pv input voltage 60VDC~500VDC
- Built-in MPPT 100A
- Capable to work without battery
- Detachable dust cover for harsh environment
- Support multiple output priority: UTL, SOL, SBU, SUB
- EQ function to optimize battery performance and extend lifecycle
- Compatible work with LiFePO4 battery via RS485
- Lithium battery activation function, which can be triggered by mains or PV

HESS-OF-E-5.5K



Specifications

Capacity	5.5KVA/5.5KW
Parallel Capability	
INPUT	
Nominal Voltage	230VAC
Acceptable Voltage Range	170-280VAC(For Personal Computer); 90-280VAC(For Home Appliances)
Frequency	50/60 Hz(Auto Sensing)
OUTPUT	
Nominal Voltage	220/230VAC±5%
Surge Power	11000VA
Frequency	50/60Hz
Waveform	Pure Sine Wave
Transfer Time	10ms(For Personal Computer); 20ms(For Home Appliances)
Peak Efficiency(PV to INV)	96%
Peak Efficiency(Battery to INV)	93%
Overload Protection	5s@≥150% load; 10s@110%~150% load
Crest Factor	3:1
Admissible Power Factor	0.6~1(Inductive or Capacitive)
BATTERY	
Battery Voltage	48VDC
Floating Charge Voltage	54VDC
Over Charge Protection	63VDC
Charging Method	CC / CV
Lithium Battery Activation	YES
Lithium Battery Communication	YES(RS485)

SOLAR CHARGER & AC CHARGER	
Solar Charger Type	MPPT
Max.PV Array Power	5500W
Max.PV Array Open Circuit Voltage	500VDC
PV Array MPPT Voltage Range	60VDC~500VDC
Max.Solar Input Current	18A
Max.Solar Charge Current	100A
Max.AC Charge Current	80A
Max.Charge Current (PV+AC)	100A
PHYSICAL	
Dimensions, D*W*H(mm)	438*295*105
Package Dimensions, D*W*H(mm)	560*375*185
Net Weight(Kg)	9
Communication Interface	RS232+RS485
ENVIRONMENT	
Operating Temperature Range	(-10°C ~ 50°C)
Storage Temperature	(-15°C ~ 50°C)
Humidity	5% to 95% Relative Humidity (Non-condensing)

LITHIUM BATTERY

Features

USER-FRIENDLY

- › Concealed wall bracket and easy to install
- › Ultra-thin body for easy handling
- › Intelligent automatically addressing

HIGHER PERFORMANCE

- › Rapid charge and discharge ability (100A per unit)
- › Highest 95% DOD, much more usable energy

EXCELLENT DESIGN

- › Up to 16 units in parallel
- › Real-time display of power
- › Support CAN+RS485 communication

SUPER SAFE AND RELIABLE

- › Top quality LFP battery
- › Multiple over-discharge protection
- › Smart BMS protection unit

2.56 KWH LOW VOLTAGE BATTERY



HOME-ESS-LV-2.56K	
Nominal Energy	2.56kWh
Capacity	2.56kWh/5.12kWh/7.68kWh/10.24kWh/12.8kWh/15.36kWh/17.92kWh/20.48kWh
Nominal Voltage	25.6V
Operating Voltage Range	21.6-28.8V
Cell Type	LFP(LiFePO4)
Dimension(W*D*H)	340*160*340mm
Weight	24.5Kg
Charging Temperature	From 0-50°C
Discharging Temperature	From -20-55°C
Depth of Discharge	95% DOD
Nominal Charging Current	100A
Nominal Discharging Current	100A
Enclosure Protection Rating	IP54
Cooling Type	Natural convection
Humidity	≤95%
Communication Port	CAN/RS485
Battery Safety	IEC 62619/CE
Transportation Certification	UN38.3

LITHIUM BATTERY

Features

HIGHER PERFORMANCE

- 100A rapid charge and discharge ability
- Highest 95% DOD, much more usable energy

EASIER INSTALLATION

- Compact modular design
- Less spare parts for plug and play installation & scaling up

ULTRA SAFETY & RELIABILITY

- Top quality LFP battery
- Intelligent BMS Protection Device

EXCELLENT DESIGN

- Up to 8 units can be stacked in parallel
- Fits into cabinets for a cleaner look

5.3 KWH UNIT LOW VOLTAGE BATTERY



HOME-ESS-LV-5.3K-S	
Nominal Energy	5.3kWh
Capacity	5.3kWh/10.6kWh/15.9kWh/21.2kWh/26.5kWh/31.8kWh/37.1kWh/42.4kWh
Nominal Voltage	51.2V
Operating Voltage Range	43.2-57.6V
Cell Type	LFP(LiFePO4)
Dimension(W*D*H)	438*437*129mm
Weight	45.2Kg
Charging Temperature	From 0~50°C
Discharging Temperature	From -20~60°C
Depth of Discharge	95% DOD
Nominal Charging Current	100A
Nominal Discharging Current	100A
Enclosure Protection Rating	IP54
Cooling Type	Natural convection
Humidity	≤95%
Communication Port	CAN/RS485
Battery Safety	IEC 62619/CE
Transportation Certification	UN38.3

AUTOMOTIVE BATTERY

Product Description

Driving in extreme condition calls for a trusted companion to generate a powerful start. Presenting the Tandhan Power range of battery systems from the most trusted power storage solution provider in India. An wide array of passenger and commercial vehicle batteries have been engineered to excel even on rough roads and challenging climate parameters. The time tested experience of manufacturing international quality products make Tandhan Power batteries an obvious choice for global driving community.

Product Highlights

› ELECTROLYTE LEVEL INDICATOR

Lid mounted window indicator is provided, which changes color when electrolyte falls below specified level for immediate top-up and hence ensure longer life.

› ADVANCED TECHNOLOGY SEPARATORS

To add high reliability and reduce resistance, improved separators are used.

› SAFETY VENTING

Electrolyte spilling is resisted in Tandhan Power batteries with introduction of leak and explosion proof venting system, to ensure greater safety even while driving on rough roads.

› HIGH PERFORMANCE PLATES

Manufactured with advanced alloy, Tandhan Power battery plates are designed to reduce grid passivation. Specially designed plates with superior tensile strength, high temperature creep resistance and longer charge holding capacity add greater endurance to Tandhan Power batteries.

› EASY HANDLING

Ergonomic yet strongly reinforced light weight polypropylene case with convenient lifting handle design ensures great maneuverability to Tandhan Power batteries.



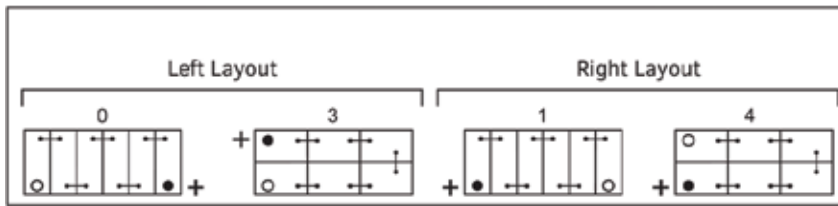
Tandhan Power range for passenger car, utility vehicles and light commercial vehicles

NOMENCLATURE	LAYOUT		AMPERE-HOUR CAPACITY AT C20 RATING	COLD CRANKING PERFORMANCE (AMPS) SAE/EN1	RESERVE CAPACITY (MUNITES)	DIMENSIONS (MM)			CHARGE INDICATOR
						LENGTH	WIDTH	HEIGHT	
38B19	L,0	R,1	35	272	43	187	127	227	✓
44B20-BH	L,0	R,1	35	272	49	197	127	227	✓
40B24	L,0	R,1	40	225	51	238	129	227	✓
40B24-S	L,0	R,1	40	225	51	238	129	227	✓
60B24	L,0	R,1	45	369	64	238	129	227	✓
60B24-S	L,0	R,1	45	369	64	238	129	227	✓
55D23-BH	L,0	R,1	60	460	90	232	172	255	✓
75D23-BH	L,0	R,1	62	500	100	232	172	255	✓
48D26-BH	L,0	R,1	50	340	72	260	173	225	✓
55D26-BH	L,0	R,1	60	460	90	260	173	225	✓
65D26-BH	L,0	R,1	65	500	100	260	173	225	✓
80D26-BH	L,0	R,1	70	540	110	260	173	225	✓
65D31-BH	L,0	R,1	70	520	110	305	173	225	✓
75D31-BH	L,0	R,1	75	560	120	305	173	225	✓
95D31-BH	L,0	R,1	80	600	130	305	173	225	✓
105D31-BH	L,0	R,1	90	720	150	305	173	225	✓
115D31-BH	L,0	R,1	95	750	155	305	173	225	✓
DIN43-LH	L,0	NA	43	324	57	210	175	175	✓
DIN44	L,0	R,1	44	360	62	210	175	190	✓
DIN50	L,0	R,1	50	405	71	210	175	190	✓
DIN55	L,0	R,1	55	420	80	243	175	190	✓
DIN60	L,0	R,1	60	440	88	243	175	190	✓
DIN62	L,0	R,1	62	480	90	243	175	190	✓
DIN66	L,0	R,1	66	480	110	278	175	190	✓
DIN72-LH	L,0	R,1	72	585	100	278	175	175	✓
DIN74	L,0	R,1	74	570	115	278	175	190	✓
DIN80	L,0	NA	80	675	141	313	175	190	-
DIN90	L,0	NA	90	720	144	353	175	190	-
DIN100	L,0	NA	100	720	141	353	175	190	-

Tandhan Power range for heavy commercial vehicles

NOMENCLATURE	LAYOUT		AMPERE-HOUR CAPACITY AT C20 RATING	COLD CRANKING PERFORMANCE (AMPS) SAE/EN1	RESERVE CAPACITY (MUNITES)	DIMENSIONS (MM)			HANDLE	CHARGE INDICATOR
						LENGTH	WIDTH	HEIGHT		
MF100 (95E41)	L,0	R,1	100	576	163	410	176	233	YES	✓
MF120 (115F51)	L,3	R,4	120	612	205	505	182	240	ROPE	-
MF150 (145G51)	L,3	R,4	150	706	264	508	222	257	ROPE	✓
MF170	L,3	R,4	170	706	264	508	222	240	ROPE	✓
MF200 (195H52)	L,3	R,4	200	950	330	521	278	242	ROPE	✓
MF170 (67018)	L,3	NA	170	940	340	513	223	215	ROPE	✓
DIN180 (68032)	L,3	NA	180	850	320	513	223	215	ROPE	✓

KEY TO BATTERY LAYOUT



TERMINAL DETAILS

Types of terminals	Tip diameter (f.D)	
	Positive (mm)	Negative (mm)
T1	14.7 $\begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$	13.0 $\begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$
T2	19.5 $\begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$	17.9 $\begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$

Conform to JIS5301-1999 and DIN standards. All Tandhan Power batteries are fitted with charge indicator (acid level indicator) and supplied in black container. No charge indicator for DIN90.*Supplied in white container and black lid

EFB START STOP "WE BELIEVE IN TECHNOLOGY BREAK THROUGH"

Tandhan Power range for passenger car, utility vehicles and light commercial vehicles

NOMENCLATURE	LAYOUT		AMPERE-HOUR	CCA	DIMENSIONS (MM)			HANDLE	TERMINAL
					LENGTH	WIDTH	HEIGHT		
EFB-M42-B20	L,0	R,1	38	340	197	127	227	Y	SMALL
EFB-N55-B24	L,0	R,1	50	430	238	129	227	Y	SMALL & STD
EFB-Q85-D23	L,0	R,1	65	550	232	172	225	Y	STANDARD
EFB-S95-D26	L,0	R,1	75	680	260	173	225	Y	STANDARD
EFB-T110-D31	L,0	R,1	90	740	305	173	225	Y	STANDARD
EFB-L1	L,0	R,1	50	430	207	175	190	Y	STANDARD
EFB-L2	L,0	R,1	60	500	243	175	190	Y	STANDARD
EFB-L3	L,0	R,1	74	600	278	175	190	Y	STANDARD
EFB-L4	L,0	NA	80	750	313	175	190	Y	STANDARD
EFB-L5	L,0	NA	100	800	353	175	190	Y	STANDARD

Tandhan Power range for heavy commercial vehicles

NOMENCLATURE	LAYOUT		AMPERE-HOUR	CCA	DIMENSIONS (MM)			HANDLE	TERMINAL
					LENGTH	WIDTH	HEIGHT		
EFB-E41-MF100	L,0	R,1	100	680	410	176	233	M.EYE/HANDL	SMALL
EFB-F51-MF120	L,3	R,4	120	780	505	182	240	ROPE	SMALL & STD
EFB-DINB-MF150	L,3	R,4	150	850	513	224	220	M.EYE/ROPE	STANDARD
EFB-DINB-MF170	L,3	R,4	170	900	513	224	220	M.EYE/ROPE	STANDARD
EFB-DINC-MF200	L,3	R,4	200	1050	514	275	242	M.EYE/ROPE	STANDARD
EFB-DINC-MF225	L,3	R,4	225	1150	514	275	242	M.EYE/ROPE	STANDARD

GENERATOR BATTERY

Product Highlights

- Excellent starting ability with higher cranking power to weight ratio
- Superior maintenance free characteristics through advanced Ca-Ca technology requiring topping up once only in 9 months under standard operating condition
- Special lid design makes the battery spill-resistant
- Excellent storage life
- High charge retention characteristics with ability to perform even under partial state- of-charge condition
- Battery size rationalized to suit different Genset ratings
- Vent caps with advanced flame arrestors and micro porous filter disc to arrest acid fumes
- Delivered factory charged and in ready-to-use condition

Specifications

BATTERY NOMENCLATURE	CAPACITY (AH) 20HR (REF)	MAXIMUM OVERALL DIMENSIONS (MM)			NOMINAL FILLED WEIGHT (KG)	ELECTROLYTE VOLUME (LITRES)	CHARGING CURRENT (A)	CCA AT - 18°C AS PER		GENSET KVA RATING	VOLTAGE SYSTEM	BATTERY LAYOUT
		L	W	H				IEC	SAE			
FGP0-GP110D31R	90	305	173	225	22.2	5	5.5	576	720	5 - 160	12V	RIGHT LAYOUT -+-----+
FGP0-GP110D31L	90	305	173	225	22.2	5	5.5	576	720	82 - 380	24V	LEFT LAYOUT -+-----+
FGP0-GP115E41L	105	410	176	233	28.1	6.1	6.5	660	825	380 - 1010	24V	LEFT LAYOUT -+-----+



TANDHAN

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POWER**
LIVE LIFE NON-STOP



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