EXIDE

POWERSAFE XHD

VRLA Convenience with Törr Tubular Toughness

www.exide4u.com

Introduction:

The Legendary Exide Törr Tubular reliability now comes maintenance free from the state of the art manufacturing line. Exide launches new Powersafe XHD series with unique GEL technology mainly for UPS application. These batteries are designed with tubular positive plate and GEL Electrolyte.

Tubular Positive plates, well established for partial state of charge operation make Powersafe XHD series a durable battery for deep cycling application even in heavy power cut areas. The GEL electrolyte makes it compact and maintenance free with no topping up for life.

Powersafe XHD is a VRLA backed by Tubular strength.

Applications:

- UPS system
- Process Instrumentation and control
- Office automation equipments
- EPABX system
- Electronic attendance and Cash register
- Fire alarm and Security system

Features:

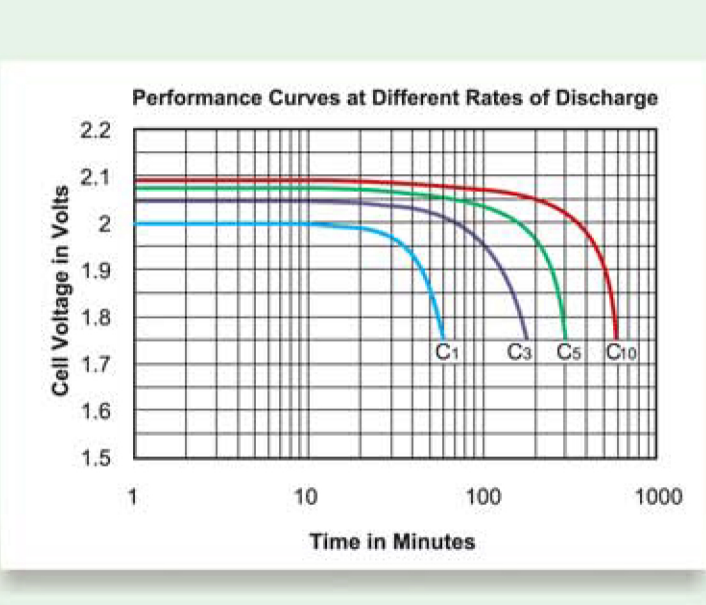
- Maintenance Free – No topping Up ever
- Capable for deep cycling
- No acid stratification
- Supplied factory charged – ready to use
- Designed for long life
- Compatible to CC-CV charging
- Deep discharge protected technology

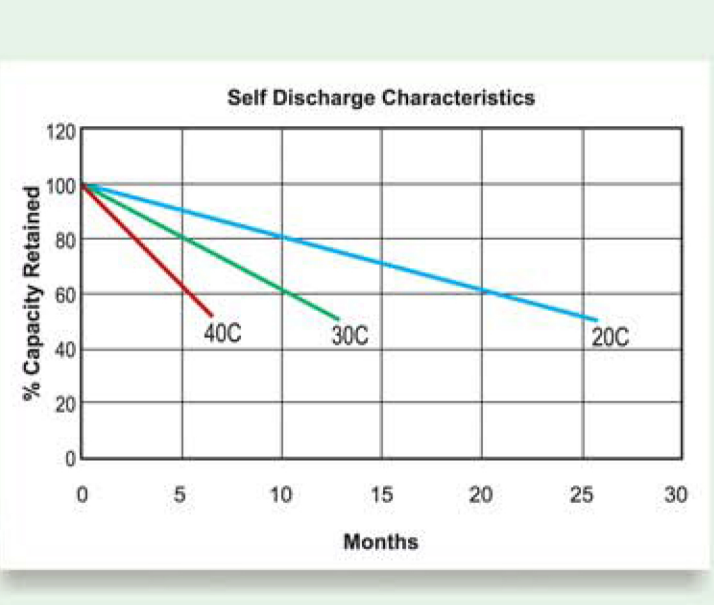
Specification Table XHD Battery

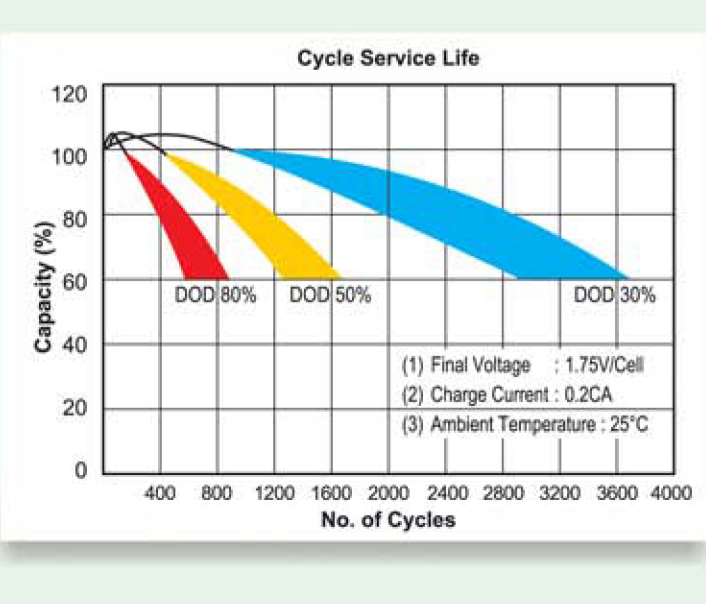
Battery Type	Nominal Voltage (V)	Rated Capacity (Ah) at 27°C							(Dimensions in mm)				Weight (Kg) +/-5%	IR (m-ohm)	Max. Discharge Current
		20hr. 1.75V /cell	10hr. 1.75V /cell	5hr. 1.75V /cell	3hr. 1.75V /cell	2hr. 1.75V /cell	60 mins. 1.75V /cell	30 mins 1.75V /cell	Overall Height +/-3	Height +/-3	Length +/-2	Width +/-2			
HD 30-12	12	30	27	24	21	19	14	9	170	170	197	165	13.00	13.0	180
HD 45-12	12	45	41	36	32	29	20	13	174	174	350	166	19.00	10.0	270
HD 82-12	12	82	75	66	58	52	37	24	235	235	407	173	33.50	7.0	492
HD 105-12	12	105	95	84	74	67	48	31	240	240	557	172	44.00	6.0	630
HD 165-12	12	165	150	132	117	105	75	49	240	240	533	250	64.00	5.0	990

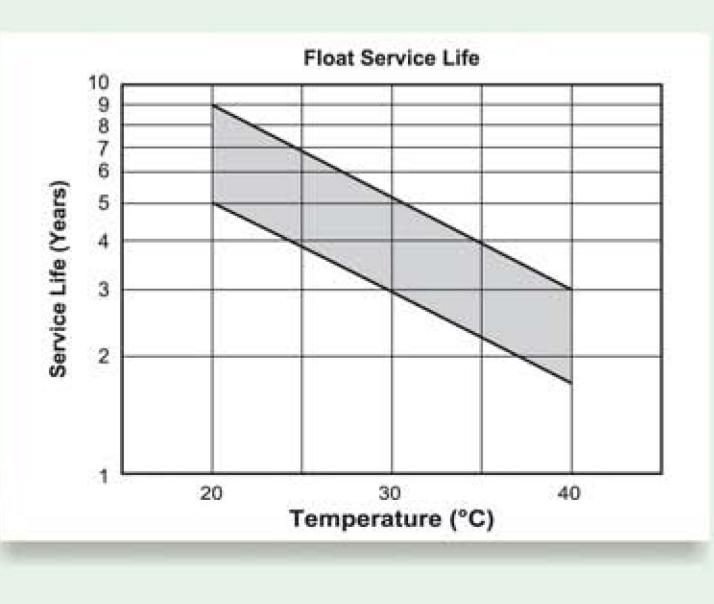
NOTE:

- Batteries are dispatched from factory at minimum 90% state of charge.
- Full capacity is achieved after a minimum ten numbers of charge-discharge cycles at full depth or 3 months of continuous float operation









NOTES ON OPERATION:

Freshening Charge:

GEL batteries do not need any freshening charge till 80% residual capacity. GEL batteries can be revived from even a 50% State of Charge (SOC) with a boost charging @14.7v/monobloc to a 90% SOC easily.

Charging Characteristics:

a) Normal Recharge:

Batteries to be Recharged in CC-CV model only.

Model of Operation	Voltage setting per 12V unit for ambient temperature 20-30°C	Current Setting
Float	13.7V +/-0.1V	Maximum: 0.2C
Cyclic	14.7V +/-0.1V	Minimum: 0.1C

Temperature Compensation : (reference 25°C)
Float : -18mV/°C/12V unit
Cyclic : -30mV/° C/12V unit

Caution on Ripple: The maximum limits of A.C content of the D.C shall be 5A A.C (rms) per 100Ah C20 capacity during float charge. The A.C current induced battery temperature rise should be below 3°C At all times the average D.C float voltage must be kept positive.

Heat Dissipation : a VRLA battery under normal float condition shall dissipate heat into the atmosphere. For the overall heat load calculation, taking into account a worst case operation, the rate of heat dissipation may be taken as 0.45 Watts/100Ah C20 capacity/Cell.

Hydrogen Evolution: Hydrogen gas evolved by a lead acid battery may be estimated from the following formula:

Hydrogen gas evolved per hour = $0.45 \times 10^{-3} \times n \times i \times C\ m^3$ at N.T.P.

Where, n = number of 2V cells

i = 0.2 A/100 Ah for a VRLA cell

C = C_{20} capacity of Cell

To design for the ventilation (air flow) requirement so that the hydrogen percentage in the air is always below 4% (lower explosive Limit), the air flow rate may be estimated as:

$Q = d \times s \times 0.45 \times 10^{-3} \times n \times i \times C\ m^3$ / hr

Where, d = dilution ratio (100 - 4) / 4 = 24

s = factor of safety, eg.5

For a VRLA, the above may be simplified as:

Q = 0.0108 x n x C

Paralleling of Battery Strings: (a) Paralleling of a maximum of three strings is allowed provided they are all of the same make, capacity and age. (b) Adequate care shall be taken in ensuring that all inter-unit connecting cables have equal length and cross-section. All cables to the system, from each of the strings, shall be of same length and cross-section. (c) The total charging current, in the case of parallel strings, to be taken care of so that each of the strings get the recommended level of Amperes.

For inter-bloc connection flexible copper cable with suitable lugs are recommended. Cable cross section may be estimated at 2.8Amps/mm2 at maximum anticipated discharge load.

Even though the Exide GEL batteries are designed to perform anywhere between -20 to +50°C for optimum battery life avoid prolonged operation in ambient in excess of 35°C.

Test discharge on installation and commissioning, if necessary, should be conducted only after 48 hours of uninterrupted float charge with load disconnected.

Ensure that batteries are put to recharge immediately after any discharge, under no circumstance the gap between the end of discharge and initiation of recharge should be more than 24 hrs.

Standard Maintenance Recommendations: (a) Visual check every 3 months to note any physical abnormality like bulge, crack or leakage etc. (b) Measure float voltage of individual units once in 3 months and recorded the data. (c) Test discharge the battery bank at least once in 12 months to check battery health. (d) Keep the battery top clean with the help of a dry cotton cloth periodically. Inspect the inter-unit connection points for any suffution etc. The inter-unit connections are to be checked for tightness once a year. (e) If battery bank is placed on steel racks/cabinets ensure insulation between the battery base and the steel tray.

Statutory Notice:

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