Long Life
Low Maintenance Free Type

Comparison
Of
Battery Characteristics

(Golf Car, Sweeper, Wheelchair)

UKB(UNIKOR BATTERY) CO., LTD.
www.ukbkorea.com

The new manufacture of long life Low Maintenance Free lead-acid tubular positive monobloc type deep discharge cycle batteries for electrical traction.

Advantage of Tubular Monobloc Deep Cycle Batteries

ITEM			UKB's tubular monobloc Deep cycle	General Deep Cycle (T-Model)	Modified Automotive (GC-Model)
Mfg. Plates	Type	Pos.(+)	Tubular(Clad)	Pasted	Pasted
		Neg.(-)	Pasted	Pasted	Pasted
	Thickness	Pos.(+)	ϕ 6mm	≒2.3mm	≒1.8mm
		Neg.(-)	2.3mm	≒1.8mm	≒1.5mm
	Lead Alloy	Pos.(+)	Antimony	Antimony	Antimony
		Neg.(-)	Antimony	Antimony	Antimony
	Casting Method		Extrude (90~120kg/㎠)	Gravity Casting	Expended or Gravity
Separator			PVC	Leaf Type PE	PE Envelope
Container & Cover			PP	PP	PP
Type of Terminal			Stud Type	Stud Type	Stud Type
Durability	Anti-corrosive		Excellent	Good	No Good
	High Temperature		Excellent	Good	No Good
	Absorption of Shock & Vibration		Excellent	Good	Good
Safety	Gas Generation		Low	High	High
	Anti-explosion		Excellent	Good	Good
Electrolyte	Water Loss		Low	High	High
	Check Level		3 weeks	2week	2 week
Self Discharge Rate			Very Low	High	High
Operating Temperature			-20~50℃	-18~45℃	-18~45℃
Discharge Performance			Deep Cycle Use	General	Starter
Life Cycle(Deep Cycle)			1250 Cycles (80% D.O.D)	754 Cycles	400 Cycles
Guarantee			1 year	-	-
Standard of Performance Application			JIS D 5303 Traction Battery	BCI Series	JIS D 5301 Automotive Battery
Status of Shipping Goods			Dry-Charged (Without Acid)	-	-

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The aim for replacing with the tubular type positive plates of deep discharge batteries : is to increase the battery life.

The tubular type positive plate construction which incorporates lead alloy spines in complete contact with active material has more excellent ability to retain active material as well as to help enable the electrolyte to penetrate freely and well, ensuring the tight structure of spines.
This advantages which lead to anti corrosion and increased battery life result from extrusion moulding(90~120/㎠) system of manufacturing the spines of the tubular type plates unlike the general gravity moulding system for paste type positive plates.

The measurement of the active material of is subject to change depending on the variation in the charge and discharge as follows.
The variation causes particles of the active materials to become fine and therefore its cohesive power weakens or detachment accelerates.

Item	Lead Acid Battery				
	Positive Plate		Negative Plate		Electrolyte
	Measure-ments	Molecular Formula	Measure-ments	Molecular Formula	
Charge	100	PbO2	100	Pb	2H2SO4
Discharge	196	PbSO4	266	PbSO4	2H2O

This change in the measurements can increase the number of holes within the plates and the surface area in contact with the electrolyte to some extent.
However, the continuing variation tends to weaken cohesive power between the spine and active materials. And besides, active materials detached from the plates short-circuit the negative plates in the side or lower part of the plate group.
The deactivation like this can cause the deterioration of battery performance and leads to the end of battery life.
Another reason of shortening the battery life is largely due to the oxidation which occurs in case of charging the batteries.

Paste Type Positive

Tubular Type Positive

Life Cycle Test report of VT6160EG
(6V 160Ah/5HR)

Test Method (JIS D5303)	1) Carry out fully charge and 5HR capacity test : DCHG. 32A, cut of voltage 5.10V at 30℃ 2) Cycle : DCHG. 40A for 3 hours CHRG. 29A for 5 hours (3 cycle every day) Test Temperature at 33 ~ 45℃ 3) Verification Capacity : Carry on the 5HR capacity every 100 cycles. 4) Completion of test : The capacity measured in 3) decrease 80% of the 5HR capacity specified. 5) Number of cycle life : More than 1000 cycles.