

TEST REPORT

Test type: _____ Type Test _____

Sample Name: Valve Regulate Lead-acid Battery

Model Type: _____ SPG12440W _____

Reporter: _____ Chen Chuanguo _____

Report Date: _____ 2014-03-22 _____

**Shandong Sacred Sun Power Sources CO.,Ltd
Inspection & Testing Center**

Test Report

Shandong Sacred Sun Power Sources Co.,Ltd
No1. Shengyang Road, Qufu ,Shandong, P.R.C

Report No. :SPS/201403011
Date :2014/03/22

The following information was submitted and identified by the manufacturer as:

Product manufacturer: Shandong Sacred sun Power Sources Co.,Ltd

Product name : Valve Regulate Lead-acid Battery

Product model range: SPG series

Product details: SPG12233W/ SPG12280W/ SPG12310W/ SPG12320W/ SPG12350W/
SPG12375W/ SPG12440W/ SPG12470W/ SPG12535W/ SPG12620W/
SPG12830W/ SPG121000W

Product tested : SPG12440W

Test result : - Please see the next page –

Chuanguo Chen, M.R./Operation Manager
Signed for and on behalf of
Shandong Sacred Sun Power Sources Co.,Ltd

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No1,Shengyang Road, Qufu city, Shandong Province, P.R.C

Tel:+86-537-4438666 Fax:+86-537-4411980

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Test result with IEC 60896-21/22:

Product safe operation in service		IEC 60896-21 test clause result				
6.1 Gas emission	Ge(float charge)= 0.00051(ml/ h · Ah) C ₃	Ge(over-charge)= 0.032(ml/ h · Ah)C ₃				
6.2 High current tolerance	Pass					
6.3 Short circuit and d.c. internal resistance	Short circuit=3070A internal resistance = 4.53mOhm					
6.4 Internal ignition from external spark sources	Pass					
6.5 Protection against ground short propensity	Pass					
6.6 Content and durability of required markings	Pass					
6.7 Material identification	Case: information still remain readable after exposure to chemical and remain in place	Cover: information still remain readable after exposure to chemical and remain in place				
6.8 Valve operation	Before: Pass			After: Pass		
6.9 Flammability rating of materials	BOX FR V0			Lid FR V0		
6.10 Intercellular connector performance	41.0°C					
Product performance in service		IEC 60896-21 test clause result				
6.11 Discharge capacity	104% C ₁₀	104% C ₈	103% C ₃	103% C ₁	102% C _{0.25}	
6.12 Charge retention during storage	91.2%~92.9%					
6.13 Float service with daily discharges	518 Cycle	C _{af} =51.6%		C _{ab} =63.3%		
6.14 Recharge behavior	24h:>92.8%			168h:>98.9%		

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Product durability in service	IEC 60896-21 test clause result	
6.15 Float service life at 40°C	N/A	
6.16 Impact of stress temperature of 55°C or 60°C	Days at C3 at 60°C: 270 to 280days	
6.17 Abusive over-discharge	C_{aod} :0.93	C_{aoc} :0.97
6.18 Thermal runaway sensitivity	168h/14.70V:42°C	168h/15.60V:43°C
6.19 Low temperature sensitivity	Cals:1.02-1.04	No damage
6.20 Dimensional stability at elevated internal pressure and temperature	The width charge:0.1mm The length charge:0.1mm	
6.21 Stability against mechanical abuse of units during installation	Pass	No leakage

Note: N/A=not available

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