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BATTERY SPECIFICATION

Valve Regulated Lead -Acid VRLA RECHARGEABLE BATTERY

1. Model: **SW280 / SW280FR**

2. Nominal Voltage / Capacity: 12V 280W/block / 10 min. 7.5AH 20HR

3. Mechanical Spec.:

(1) Measurements:	Length:	151 ± 1 mm
	Width:	65 ± 1 mm
	Case height:	94 ± 1 mm
	Overall height:	97.5 ± 2 mm
(2) Terminal Tab:	Faston tab	250 / 6.35 mm
(3) Weight:	About 2.6 kg	
(4) Container material:	SW280:	ABS / UL94HB
	SW280FR:	ABS / UL94V0

4. Construction:
This battery is composed of positive plates, negative plates, separators, container, lid, electrolyte etc., and is equipped with positive and negative polarity terminals. Any emitted gas from the battery is minimized with the negative plate gas recombinant method, thus requiring no topping up of electrolyte.

5. External appearance:
Battery shall be without acid leakage, conspicuous stain, scar or deformation.

6. Performance:

6-1 Temperature of tested battery shall be 25±2℃, if not specified.

6-2 Discharge capacity: (This value is the minimum)

PERFORMANCE DATA AT 25℃ - Amperes and Watts									
TIME F.V.		3M	5M	6M	8M	10M	15M	30M	1H
1,80 VPC	W	506	397	359	302	262	199	115	65
	A	45.2	35.1	31.6	26.6	22.9	16.6	9.8	5.5
1,70 VPC	W	594	443	391	329	278	207	118	66
	A	54.9	39.9	34.7	29.2	24.3	17.3	10.1	5.6
1,67 VPC	W	606	450	397	334	281	208	119	66
	A	55.4	40.4	35.2	29.6	24.7	17.4	10.1	5.6
1,60 VPC	W	619	458	402	338	285	210	119	67
	A	58.1	41.6	35.8	30.2	24.9	17.5	10.1	5.6

The battery at time of delivery capacity shall be read more than 100% within 1 days after being charged at 14.4V (max. 0.25C20 for 16Hr.)

6-3 Open circuit voltage:
The battery at time of delivery shall read 12.6V (OCV) or more, provided it is measured within 7 days after delivery.

6-4 Internal resistance:
Give a full charge to the battery, and measure with AC bridge (1KHz), about 13.5mΩ.

6-5 Maximum continuous discharge current:
No deterioration shall be found with 15C20 [A] discharge for 5 seconds.

6-6 Charging:

Method	Given Voltage	Maximum charging Current	Special condition(s)
Float Charging	13.65V±0.15V	0.25C20 [A]	As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is -3mV/℃/cell at 25℃ of standard centre point.
Cyclic Charging	14.4V~15.0V	0.25C20 [A]	As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is -4mV/℃/cell at 25℃ of standard centre point.

6-7 Permissible temperature range:

Conditions	Temperature range
Discharging	-15℃ ~ 50℃
Charging	0℃ ~ 40℃
Storage	-15℃ ~ 40℃

6-8 Storage period without use:

Storage temperature	Max. storage period
25℃ or less	6 months
30℃ or less	4 months
35℃ or less	3 months
40℃ or less	2 months

6-9 Expected float use life:
Test condition:
Charge at 13.65±0.15V continuously and discharge at 0.25C20 [A] to FV 10.2V every 3 months. Battery capacity maintains more than 2Hr during 3 years, at 25℃. Expected life will become shorter accordingly with rise in the temperature.

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6-10 Mechanical strength:

6-10-1 Anti-vibration performance:
Vibrate the battery in any directions for 60 consecutive minutes with 4 mm amplitude and 16.7 Hz per minute. Read the voltage and make visual inspection. Battery shall show no extreme damage or no electrolyte leakage and should read nominal 12V or more.

6-10-2 Anti-impact performance:
Drop it from a 20cm height onto a 10mm thick solid wooden block in any direction except terminal portions. Read the voltage and make visual inspection. Battery shall show no extreme damage or no electrolyte leakage and should read nominal 12V or more.

7. Installation Conditions:
Storage container for rechargeable battery must not be of sealed and air tight construction; the container must be equipped with appropriate ventilation system, such as ventilation holes leading to the outside and so on.
The following applies to using a rechargeable battery inside a metallic storage box: To prevent the rechargeable battery from leaking fluid due to a breakage in the electrolytic cell, thus forming a leak circuit between the battery and the storage box (or fixed frame), install between these two items a heat- and acid- resistant insulating sheet (or tray) that will not be damaged by periodic stress. Alternatively, place the rechargeable battery inside an insulating bag but not a sealed one.
For the above described insulation material, do not use any material that can be stained with grease, or that can have organic substance oozing out of itself. Do not allow the rechargeable batter to come into contact with vinyl tape containing plasticizer, insulation sheet, solvent, or grease.

8. Use different kinds, capacity, lot number of battery to series connection, or parallel connection more than three groups, or cycle use, please avoid.

9. Design life: 3-5 years acc. to EuroBat