

## Summary Report # RB06\_01\_60 UN38.3 Summary Report\_01

### Specifications:

This battery pack contains two rechargeable batteries, with a total of four cells. The cells are a bought in component, each cell protected with it's own discharge protection PCB and tested to conform to the UN Manual of Test and Criteria ST/SG/AC.10/11, section 38.3 but the manufacturer's test house. In addition, the complete battery pack is tested in accordance with the small battery requirements of the UN Manual of Test and Criteria, 8<sup>th</sup> edition.

Battery cell material:	Rechargeable Lithium-ion Polymer
Battery Pack ID	RB06_01_60 Inspiration Rebreather Battery Pack
Construction:	This battery pack contains two rechargeable batteries, with a total of four cells. The cells are a bought in component, each cell protected with it's own discharge protection PCB
Battery Pack:	contains two separate batteries. Each battery consists of two cells assembled in series.
Specification per cell:	3.7 volts, 2400 mAh, 8.8 Wh, 44 g net weight.
Specification per battery:	7.4 volts, 2400 mAh, 17.76 Wh, 88 g net weight.
Specification per battery pack:	7.4 volts, 4800 mAh, 35.52 Wh, 176g net weight.
Battery Pack Manufacturer	Ambient Pressure Diving Ltd, Unit 2c, Water ma Trout Industrial Estate, Helston, Cornwall, TR13 0LW, United Kingdom, Tel : +44 (0)1326 561040/563834 ; Contact : Martin Parker, email : <a href="mailto:martinparker@apdiving.com">martinparker@apdiving.com</a>
Cell supplier:	IBT Solutions Ltd <a href="http://www.ibt-solutions.tech">www.ibt-solutions.tech</a>  Tel: +44 (0)800 2425841. Contact Lee Taylor, email: <a href="mailto:lee@ibt-solutions.tech">lee@ibt-solutions.tech</a>
Cell manufacturer:	SHENZHEN SAI JIAO YANG ENERGY TECHNOLOGY CO., LTD, 3# China Jingneng Technology Environmental Industrial Park, 2nd Baolong Road, Longgang, Shenzhen, Tel: 13316909035 E-mail: 619231570@qq.com
Cell conformity testing:	UN Manual of Test and Criteria ST/SG/AC.10/11, section 38.3
Test report No:	SQY202110817U01
Test dates:	August 17 <sup>th</sup> to September 2 <sup>nd</sup> 2021

Test House:	Guangzhou MCM Certification & Testing Co Ltd 1F No.13, Zhong San Section, ShiGuang Road, Panyu District, Guangzhou City, Guangdong Province, China. Tel: 0086 20 347 77 662 / 0086 20 347 77 663 Email: <a href="mailto:mark.miao@mcmtek.com">mark.miao@mcmtek.com</a> Web: <a href="http://www.mcmtek.com">http://www.mcmtek.com</a>
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Cell Tests Performed:

PERFORMED TESTS			RESULT
38.3.4.1	T1	Altitude Test	Pass
38.3.4.2	T2	Thermal Test	Pass
38.3.4.3	T3	Vibration	Pass
38.3.4.4	T4	Shock	Pass
38.3.4.5	T5	External Short Circuit	Pass
38.3.4.6	T6	Impact/Crush	Pass
38.3.4.7	T7	Overcharge	Not applicable
38.3.4.8	T8	Forced Discharge	Pass

Lithium Battery Pack Test Summary in accordance with Sub Section 38.3 of UN Manual of Tests and Criteria , Revision 8	
<b>BATTERY TRANSPORTATION INFORMATION</b>	
Battery pack construction	Four Rechargeable Lithium-ion Polymer cells, ID E655165-002, supplied by IBT Solutions Ltd, manufactured by SHENZHEN SAI JIAO YANG ENERGY TECHNOLOGY CO., LTD, matched and assembled into two 7.4v batteries, with an AP battery PCB featuring two shut off reed switches, operated externally by a twin magnet clip, to switch off the battery outlets for shipping purposes and featuring an M8 inlet for charging purposes, using the bespoke AP charger RB06.01.70 and the mains charging adaptor RB06.01.80 and 12v charging adaptor RB06.01.90, the cells and PCB are inserted into a Polypropylene housing and then soft gelled. The soft gel allows for expansion of the cells during charging
Battery Pack:	contains two separate batteries. Each battery consists of two cells assembled in series.
Specification per cell:	3.7 volts, 2400 mAh, 8.8 Wh, 44 g net weight.
Specification per battery:	7.4 volts, 2400 mAh, 17.76 Wh, 88 g net weight.
Specification per battery pack:	7.4 volts, 4800 mAh, 35.52 Wh, 176g net weight.
Battery pack conformity testing:	UN Manual of Test and Criteria revision 8, section 38.3
Test House Cells:	Guangzhou MCM Certification & Testing Co Ltd 1F No.13, Zhong San Section, ShiGuang Road, Panyu District, Guangzhou City, Guangdong Province, China. Tel: 0086 20 347 77 662 / 0086 20 347 77 663 Email: <a href="mailto:mark.miao@mcmtek.com">mark.miao@mcmtek.com</a> Web: <a href="http://www.mcmtek.com">http://www.mcmtek.com</a> Test report No. SQY202110817U01

Test House Battery Pack: Tests T1, T2, T5 and T7 (T6 and T8 not applicable)	Ambient Pressure Diving Ltd (AP Diving) Water ma Trout Industrial Estate, Helston, Cornwall, TR13 0LW , United Kingdom. Tel: 0044 1326 561 040 Email: <a href="mailto:martinparker@apdiving.com">martinparker@apdiving.com</a> Web: <a href="https://www.apdiving.com">https://www.apdiving.com</a> and <a href="https://www.apdiving.eu">https://www.apdiving.eu</a> , Test report No. RB06_01_60 UN38.3 Test_01 Test dates: August 2 <sup>nd</sup> 2023 to March 6 <sup>th</sup> 2024
Test House Battery Pack: Tests T3 and T4	Axis Test Laboratories, 11A Oakway Court, Meadowfield Industrial Estate, Durham, DH7 8XD. United Kingdom. Tel: +44 (0)191 378 4653 Email: <a href="mailto:Ian.Howson@axislaboratories.co.uk">Ian.Howson@axislaboratories.co.uk</a> Web: <a href="https://www.axistestlaboratories.co.uk/">https://www.axistestlaboratories.co.uk/</a> Test report No. 23038.01 Test dates: 5 <sup>th</sup> to the 17 <sup>th</sup> January 2024

Lithium Cell Tests Performed by Guangzhou MCM Certification & Testing Co Ltd :

PERFORMED TESTS			RESULT
38.3.4.1	T1	Altitude Test	Pass
38.3.4.2	T2	Thermal Test	Pass
38.3.4.3	T3	Vibration	Pass
38.3.4.4	T4	Shock	Pass
38.3.4.5	T5	External Short Circuit	Pass
38.3.4.6	T6	Impact/Crush	Pass
38.3.4.7	T7	Overcharge	Not applicable
38.3.4.8	T8	Forced Discharge	Pass

### Battery Pack Tests Performed

The RB06/01/60 Battery Packs is classed as a Small Battery Pack within the UN Manual of Tests and Criteria Rev.8, 38.3.

PERFORMED TESTS			Test House	RESULT
38.3.4.1	T1	Altitude Test	AP Diving	Pass
38.3.4.2	T2	Thermal Test	AP Diving	Pass
38.3.4.3	T3	Vibration	Axis Test Laboratories	Pass
38.3.4.4	T4	Shock	Axis Test Laboratories	Pass
38.3.4.5	T5	External Short Circuit	AP Diving	Pass
38.3.4.6	T6	Impact/Crush	Not applicable	Not applicable
38.3.4.7	T7	Overcharge	AP Diving	Pass
38.3.4.8	T8	Forced Discharge	Not applicable	Not applicable

T6 and T8 are not applicable according to Table 38.3.3 – Small batteries

Conclusion:

**The Battery pack, RB06/01/60 manufactured by AP Diving, for use in it's rebreather products, passes the UN Manual of Tests and Criteria, revision 8, 38.3 and is deemed safe for air transportation.**

As per IATA Lithium Battery Guidance Document 2023, FAQs section F – “a lithium battery mark is not required on the package” and section G – “the provision allows for packages containing no more than four cells or two batteries installed in equipment per package, to move without the lithium battery mark and therefore without the compliance statement on the airway bill.”

Signed:



*M J Parker*

Martin Parker,  
Managing Director, AP Diving, Helston, UK

Date: 6<sup>th</sup> March 2024