

**TEST SUMMARY**Issue/Amendment
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1/7From
Robert
Bosch
GmbHLITHIUM CELLS OR BATTERIES
TEST SUMMARY IN ACCORDANCE WITH
SUB-SECTION 38.3 OF UN MANUAL OF TESTS
AND CRITERIAOur Reference
AE-EB/ENBDate
15-Oct-19**1 Product Manufacturer**

Name	Robert Bosch GmbH Bosch eBike Systems
Address	Gerhard-Kindler-Str. 3 72770 Reutlingen, Germany
Telephone	+49 180 730 3003
Email	contact@bosch-ebike.de
Website	www.bosch-ebike.com

2 Description

Cell / Battery used in	Bosch eBike battery (PowerPack / PowerTube)
Cell / Battery type	Lithium ion battery
UN classification	UN 3480
Proper shipping name	Lithium ion batteries

The products listed below have been successfully tested and comply with UN Model Regulation, Manual of Tests and Criteria, Part III sub-section 38.3.

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



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(Note that tests T6 and T8 are not applicable to batteries)

Reference to assembled battery testing requirements (38.3.3 (f), 38.3.3 (g)):

Tested under 38.3.3 (f)

3 Test houses

The UN 38.3 tests were performed by one of the following test houses and were tested to UN Manual of Tests and Criteria Revision 3 Amendment 1 or subsequent revisions or amendments.

Test house	Address and telephone	Website	Email
Johnson Matthey Battery Systems	ul. Alberta Einsteina 36 44-109 Gliwice, Poland +48 (0) 32 330 2650	www.jmbatterysystems.com	contact.pl@jmbatterysystems.com
SLG Prüf- und Zertifizierungs GmbH	Burgstädter Strasse 20, 09232 Hartmannsdorf, Germany +49 (0)3722 7323-0	www.slg.de.com	service@slg.de.com
VDE Testing and Certification Institute	Merianstrasse 28, 63069 Offenbach/Main, Germany Testing location: Goethering 43, 63067, Offenbach/Main, Germany +49 (0) 69 8306-0	www.vde.com	vde-institut@vde.com
TÜV Singapore	No. 1 Science Park Drive, Singapore 118221 +65 6885 1333	www.tuv-sud-psb.sg	enquiries@tuv-sud-psb.sg

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15-Oct-19**4 Product Test Information**

Model number	Physical description	Battery weight [kg]	Wh rating [Wh]	Test report number	Test report date	Edition of UN Manual used
0275007543 0275007544 0275007545 0275007546	PowerTube 625	3.63	625	1042-18-MM-19-PP021	19-08-2019	Rev. 6 A1
0275007543 0275007544 0275007545 0275007546	PowerTube 625	3.54	625	1042-18-MM-19-PP019	16-08-2019	Rev. 6 A1
0275007543 0275007544 0275007545 0275007546	PowerTube 625	3.52	625	1042-18-MM-19-PP017	14-08-2019	Rev. 6 A1
0275007539 0275007540 0275007541 0275007542	PowerTube 500	2.91	500	1075-17-MM-17-PP002 1075-17-MM-17-PP001	10.07.2017 13.07.2017	Rev. 6 Rev. 6
0275007539 0275007540 0275007541 0275007542	PowerTube 500	2.96	500	1075-17-MM-18-PP011	22.06.2018	Rev. 6 A1
0275007539 0275007540	PowerTube 500	2.89	500	1075-17-MM-18-PP007	13.03.2018 05.08.2019	Rev. 6 A1 Rev. 6 A1

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Model number	Physical description	Battery weight [kg]	Wh rating [Wh]	Test report number	Test report date	Edition of UN Manual used
0275007541 0275007542				7191216588-EEC19		
0275007555 0275007556 0275007557 0275007558	PowerTube 400	2.89	400	1075-17MM-19-PP013	30.01.2019	Rev. 6 A1
0275007555 0275007556 0275007557 0275007558	PowerTube 400	2.96	400	1075-17MM-19-PP014	30.01.2019	Rev. 6 A1
0275007529 0275007530 0275007533 0275007534	PowerPack 500 Frame	2.65 2.53	500	1012-16-MM-17-PP003 1137-14-MM-15-PP001	24.10.2017 02.02.2015	Rev. 6 A1 Rev. 5 A2
0275007529 0275007530 0275007533 0275007534	PowerPack 500 Frame	2.49 2.54	500	1135-14-MM-15-PP001 1003-16-MM-16-PP001	19.01.2015 17.02.2016	Rev. 5 A1 Rev. 5 A2
0275007529 0275007530 0275007533 0275007534	PowerPack 500 Frame	2.56	500	1003-16-MM-16-PP005	08.12.2016	Rev. 5 A2
0275007529 0275007530	PowerPack 500 Frame	2.60	500	1003-16-MM-16-PP003	15.11.2016	Rev. 5 A2

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0275007533 0275007534						
0275007531 0275007532 0275007535 0275007536	PowerPack 500 Rack	2.70	500	1005-15-MM-15-PP001	17.03.2015	Rev. 5
0275007531 0275007532 0275007535 0275007536	PowerPack 500 Rack	2.65	500	1004-15-MM-15-PP001	17.03.2015	Rev. 5
0275007531 0275007532 0275007535 0275007536	PowerPack 500 Rack	2.72	500	1150-17-MM-15-PP001	05.02.2018	Rev. 5 A2
0275007510 0275007512 0275007524	PowerPack 400 Frame	2.40 2.41	400	261047-TL7-3 1147-13-MM-13-PP001	09.04.2019 30.01.2014	Rev. 6 A1 Rev. 5
0275007514 0275007522 0275007525	PowerPack 400 Rack	2.56 2.58	400	261047-TL7-1 UN_BBR26x	09.04.2019 13.03.2014	Rev. 6 A1 Rev. 5
0275007547 0275007548 0275007549	PowerPack 300 Frame	2.41	300	1147-13-MM-13-PP001	30.01.2014	Rev. 5

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Model number	Physical description	Battery weight [kg]	Wh rating [Wh]	Test report number	Test report date	Edition of UN Manual used
0275007550	PowerPack 300 Rack	2.58	300	UN_BBR26x	13.03.2014	Rev. 5
0275007503	Classic+ Frame 400	2.53	400	1079-12-MM-16-PP004	11.07.2016	Rev. 5 A2
0275007505	Classic+ Rack 400	2.65	400	1077-12-MM-16-PP005	11.07.2016	Rev. 5 A2

5 Additional supplier information

Every Bosch eBike battery is in compliance with the transport regulations (ADR 2.2.9.1.7, SP 230/IMDG Code, SP 230 / air transport, ICAO TI/IATA DGR 3.9.2.6.1).

Each battery is equipped with a Battery Management System (BMS). The BMS prevents external shorts if the battery is switched on by accident. In switched-off state there is no voltage at the external contacts present and therefore no hazard of an external short.

Each battery with multiple cells or cells in parallel circuit is equipped with effective means of preventing reverse current flow.

Each cell and battery type is manufactured in strict accordance to a quality assurance system. The quality assurance system is regularly audited.

6 Authorized signature

Name, Title
Dr. Martin Holzmann
Vice President
Battery Systems and Connected Devices
Bosch eBike Systems

Name, Title
Dr. Thilo Köder
Director
Engineering eBike Battery and Charger
AE-EB/ENB