

Lithium Cell/Battery UN38.3 Test Summary Report IN ACCORDANCE WITH SUB-SECTION 38.3 OF MANUAL OF TESTS AND CRITERIA

Battery model i	name	B22/5.2 Li-lon B18/5.2 Li-lon	
Manufacturer	Hilti Corporation Feldkircherstrasse 100 LI – 9494 Schaan Liechtenstein www.hilti.com Phone: +1 352 323 3500	Responsible contact person at Hilti	Mr. Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing E-Mail: Stefan. Tobler@hilti.com Phone: +41 79 893 8789

Cell model			Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
	LGDBHE41865 INR19/66		Address	No. 345 East Yunling Road, 200062 Shanghai, P.R. China
			Phone	+86 021-52815377-0713/0714/0717/
			E-Mail	Msds123@gmail.com
			website	http://www.ghs.cn/index.aspx?language=en
		Test report ID	NO111712	20059
		Report Date	2018-01-22	

B22/5.2 Li-lon (01) & B18/5.2 Li-lon (01) (both types are identical in construction)		
Li-Ion battery (rechargeable)	Mass of battery [g]	797
6s2p	Total number of cells per battery	12
21.6	Rated Power per cell [Wh]	9.33
5.2	Rated Power per battery [Wh]	112
	(both types are identical i Li-lon battery (rechargeable) 6s2p 21.6	(both types are identical in construction) Li-lon battery (rechargeable) 6s2p Total number of cells per battery 21.6 Rated Power per cell [Wh]

List of tests	conducted and results - Mark N/A, pass or fail with a "X"	N/A	Pass	Fail
38.3.4.1	T1 – Altitude simulation		X	
38.3.4.2	T2 – Thermal test		Х	
38.3.4.3	T3 – Vibration		Х	
38.3.4.4	T4 - Shock		X	
38.3.4.5	T5 - External Short Circuit		Х	
38.3.4.6	T6 - Impact/Crush (cell only)		Х	
38.3.4.7	T7 - Overcharge		X	
38.3.4.8	T8 - Forced discharge (cell only)		X	
		N/A	UN38.3.3(f)	UN38.3.3(g)
Reference t	o assembled battery testing requirements UN 38.3.3		X	100

TEST REFERENCE UN Manual of Test and Criteria, Part III, sub-section 38.3 as applicable at the date of the type testing.			
	Cell	Battery	
Revision	ST/SG/AC.10/11Rev.5/Amend.1&	ST/SG/AC.10/11Rev.5/Amend.1&	
Amendment	Amend.2 UN 38.3	Amend.2 UN 38.3	

The manufacture of the cell / battery is in accordance with the documented quality management system as required by the regulations.

Signatory		14
Place, Date	Name, Title	Company stamp and signature
Schaan, 2019-08-26	Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing	Hilti humaselischaft
		9494 Schaan

Fürstentum Leichtenstein



Lithium Cell/Battery UN38.3 Test Summary Report

IN ACCORDANCE WITH	I SUB-SECTION 38.3 OF MANUAL	OF TESTS AND CRITERIA
IN ACCOMPANCE MILL	SUD-SECTION 38.3 OF MANUAL	OF IESIS AND CRITERIA

Battery model name		B22/5.2 Li-lon (01) B18/5.2 Li-lon (01)		Li-lon battery (rechargeable)	
Manufacturer	Hilti Corporation Feldkircherstrasse 100 LI – 9494 Schaan Liechtenstein www.hilti.com Phone: +1 352 323 3500	Responsible contact person at Hilti	Tran GLD E-Ma	Stefan Tobler sport Manager Dangerous Goods Global Transport & Warehousing ail: <u>Stefan.Tobler@hilti.com</u> ne: +41 79 893 8789	

Cell model	muRata (Sony)	Test	Name	TÜV SÜD Battery Testing GmbH
name	US18650 VTC5 /	laboratory	Address	Daimlerstr. 15,
				85748 Garching,
	INR19/66			Germany
			Phone	+49 89 32950-710
			E-Mail	
			website	www.tuev-sued.de
		Test report ID	BE993070	04188-01
		Report Date	2015-04-1	0

Model number(s)	B22/5.2 Li-lon (01) & B18/5.2 Li-lon (01) (both types are identical in construction)		
Type of battery	Li-lon battery (rechargeable)	Mass of battery [g]	797
Configuration battery	6s2p	Total number of cells per battery	12
Nominal voltage battery [V]	21.6	Rated Power per cell [Wh]	9.33
Rated capacity battery [Ah]	5.2	Rated Power per battery [Wh]	112

TESTS AND				
List of tests	conducted and results - Mark N/A, pass or fail with a "X"	N/A	Pass	Fail
38.3.4.1	T1 – Altitude simulation		X	
38.3.4.2	T2 – Thermal test		X	
38.3.4.3	T3 - Vibration		X	
38.3.4.4	T4 - Shock		Х	
38.3.4.5	T5 – External Short Circuit		X	
38.3.4.6	T6 - Impact/Crush (cell only)		Х	
38.3.4.7	T7 - Overcharge		Х	
38.3.4.8	T8 - Forced discharge (cell only)	-0	Х	
		N/A	UN38.3.3(f)	UN38.3.3(g)
Reference t	o assembled battery testing requirements UN 38.3.3		X	, ,

TEST REFERENCE UN Manual of Test a	and Criteria, Part III, sub-section 38.3 as a	applicable at the date of the type testing.
	Cell	Battery
Revision	ST/SG/AC.10/11Rev.5/Amend.1&	ST/SG/AC.10/11Rev.5/Amend.1&
Amendment	Amend.2 UN 38.3	Amend.2 UN 38.3

	//
Name, Title	Company stamp and signature
Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing	Hilti Aktiergesellschaft
	Stefan Tobler Transport Manager Dangerous Goods



Lithium Cell/Battery UN38.3 Test Summary Report

IN ACCORDANCE WITH SUB-SECTION 38.3 OF MANUAL OF TESTS AND CRITERIA

Battery model i	name	B22/5.2 Li-lon B18/5.2 Li-lon	
Manufacturer	Hilti Corporation Feldkircherstrasse 100 LI – 9494 Schaan Liechtenstein www.hilti.com Phone: +1 352 323 3500	Responsible contact person at Hilti	Mr. Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing E-Mail: Stefan. Tobler@hilti.com Phone: +41 79 893 8789

Cell model	Panasonic / Sanyo UR18650 NSX	Test laboratory	Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
Hame	INR19/66		Address	No. 345 East Yunling Road, 200062 Shanghai, P.R. China
			Phone	+86 021-52815377-0713/0714/0717/
			E-Mail	Msds123@gmail.com
			website	http://www.ghs.cn/index.aspx?language=en
		Test report ID	NO111601	0036
		Report Date	2016-03-16	

DESCRIPTION OF BATTERY				
Model number(s)	B22/5.2 Li-Ion (01) & B18	B22/5.2 Li-lon (01) & B18/5.2 (01) Li-lon		
	(both types are identical i	n construction)		
Type of battery	Li-lon battery	Mass of battery [g]	797	
	(rechargeable)			
Configuration battery	6s2p	Total number of cells per battery	12	
Nominal voltage battery [V]	21.6	Rated Power per cell [Wh]	9.33	
Rated capacity battery [Ah]	5.2	Rated Power per battery [Wh]	112	
Hilti manufactures all cells/	batteries under a quality ma	nagement system as required by this r	egulation	

TESTS AND	RESULTS	Nest Troken		VIII CA O SOFT PASS
List of tests	conducted and results - Mark N/A, pass or fail with a "X"	N/A	Pass	Fail
38.3.4.1	T1 – Altitude simulation		X	
38.3.4.2	T2 – Thermal test		Х	
38.3.4.3	T3 - Vibration		X	
38.3.4.4	T4 - Shock		X	
38.3.4.5	T5 – External Short Circuit		X	
38.3.4.6	T6 - Impact/Crush (cell only)	au a	Х	
38.3.4.7	T7 - Overcharge		Х	
38.3.4.8	T8 - Forced discharge (cell only)		Х	
		N/A	UN38.3.3(f)	UN38.3.3(g)
Reference t	o assembled battery testing requirements UN 38.3.3		X	

TEST REFERENCE UN Manual of Test and Criteria, Part III, sub-section 38.3 as applicable at the date of the type testing.				
	Cell	Battery		
Revision	ST/SG/AC.10/11Rev.5/Amend.1&	ST/SG/AC.10/11Rev.5/Amend.1&		
Amendment	Amend.2 UN 38.3	Amend.2 UN 38.3		

Place, Date	Name, Title	Company stamp and signature
Schaan, 2019-08-26	Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing	Hilti kylengesellschaft
		9494 Schaan



Lithium Cell/Battery UN38.3 Test Summary Report

IN ACCORDANCE WITH SUB-SECTION 38.3 OF MA	NUAL OF TESTS AND CRITERIA
---	----------------------------

Battery model name		B22/5.2 Li-lon B18/5.2 Li-lon	
Manufacturer	Hilti Corporation Feldkircherstrasse 100 LI – 9494 Schaan Liechtenstein www.hilti.com Phone: +1 352 323 3500	Responsible contact person at Hilti	Mr. Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing E-Mail: Stefan. Tobler@hilti.com Phone: +41 79 893 8789

Cell model name	Samsung SDI INR18650-25R++*/	Test laboratory	Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
INR19/66			Address	No. 345 East Yunling Road, 200062 Shanghai, P.R. China
*N	*Model Details: INR18650-25R++ These cells may have optional alphanumeric characters or blanc, not related safety)		Phone	+86 021-52815377-0713/0714/0717/
			E-Mail	Msds123@gmail.com
			website	http://www.ghs.cn/index.aspx?language=en
		Test report ID	NO1115030121	
		Report Date	2015-03-16	

Model number(s)				
	(both types are identical i	n construction)		
Type of battery	Li-lon battery (rechargeable)	Mass of battery [g]	797	
Configuration battery	6s2p	Total number of cells per battery	12	
Nominal voltage battery [V]	21.6	Rated Power per cell [Wh]	9.33	
Rated capacity battery [Ah]	5.2	Rated Power per battery [Wh]	112	
Hilti manufactures all cells	batteries under a quality ma	anagement system as required by this r	egulation	

List of tests	conducted and results - Mark N/A, pass or fail with a "X"	N/A	Pass	Fail
38.3.4.1	T1 – Altitude simulation	14/7	X	ran
38.3.4.2	T2 – Thermal test		X	
38.3.4.3	T3 - Vibration		X	
38.3.4.4	T4 - Shock		X	
38.3.4.5	T5 - External Short Circuit		Х	
38.3.4.6	T6 - Impact/Crush (cell only)		Х	
38.3.4.7	T7 - Overcharge		Х	
38.3.4.8	T8 - Forced discharge (cell only)		X	
		N/A	UN38.3.3(f)	UN38.3.3(g)
Reference t	o assembled battery testing requirements UN 38.3.3		Х	337

TEST REFERENCE UN Manual of Test and Criteria, Part III, sub-section 38.3 as applicable at the date of the type testing.			
	Cell	Battery	
Revision	ST/SG/AC.10/11Rev.5/Amend.1&	ST/SG/AC.10/11Rev.5/Amend.1&	
Amendment	Amend.2 UN 38.3	Amend.2 UN 38.3	

Signatory		
Place, Date	Name, Title	Company stamp and signature
Schaan, 2019-08-26	Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing	Hilly Mky special schaft
		9494 Schaan Fürstentum Leichtenstein



Lithium Cell/Battery UN38.3 Test Summary Report IN ACCORDANCE WITH SUB-SECTION 38.3 OF MANUAL OF TESTS AND CRITERIA

Battery model name		B22/5.2 Li-lon B18/5.2 Li-lon	
Manufacturer	Hilti Corporation Feldkircherstrasse 100 LI – 9494 Schaan Liechtenstein www.hilti.com Phone: +1 352 323 3500	Responsible contact person at Hilti	Mr. Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing E-Mail: Stefan. Tobler@hilti.com Phone: +41 79 893 8789

Cell model name	Samsung SDI INR18650-25R++*/	Test laboratory	Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
Hame	*Model Details: INR18650-25R++ These cells may have optional alphanumeric characters or blanc, not related safety)		Address	No. 345 East Yunling Road, 200062 Shanghai, P.R. China
			Phone	+86 021-52815377-0713/0714/0717/
			E-Mail	Msds123@gmail.com
			website	http://www.ghs.cn/index.aspx?language=en
		Test report ID	NO1115030121	
		Report Date	2015-03-16	

B22/5.2 Li-lon (01) & B18/5.2 Li-lon (01) (both types are identical in construction)		
Li-lon battery (rechargeable)	Mass of battery [g]	780
6s2p	Total number of cells per battery	12
21.6	Rated Power per cell [Wh]	9.33
5.2	Rated Power per battery [Wh]	112
	(both types are identical in Li-lon battery (rechargeable) 6s2p 21.6	(both types are identical in construction) Li-lon battery (rechargeable) 6s2p Total number of cells per battery 21.6 Rated Power per cell [Wh]

List of tests	conducted and results - Mark N/A, pass or fail with a "X"	N/A	Pass	Fail
38.3.4.1	T1 – Altitude simulation	IVA	X	I dii
38.3.4.2	T2 – Thermal test		Х	
38.3.4.3	T3 – Vibration		Х	
38.3.4.4	T4 - Shock		Х	1
38.3.4.5	T5 - External Short Circuit		Х	
38.3.4.6	T6 - Impact/Crush (cell only)		Х	
38.3.4.7	T7 - Overcharge		Х	
38.3.4.8	T8 - Forced discharge (cell only)		X	
		N/A	UN38.3.3(f)	UN38.3.3(g)
Reference t	o assembled battery testing requirements UN 38.3.3		X	

TEST REFERENCE UN Manual of Test a	nd Criteria, Part III, sub-section 38.3 as a	applicable at the date of the type testing.
	Cell	Battery
Revision	ST/SG/AC.10/11Rev.5/Amend.1&	ST/SG/AC.10/11Rev.5/Amend.1&
Amendment	Amend.2 UN 38.3	Amend.2 UN 38.3

Signatory		1/2
Place, Date	Name, Title	Company stamp and signature
Schaan, 2019-08-26	Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing	Hilti aktiongesellschaft
		9494 Schaan Fürstentum Leichtenstein