



Hilti Corporation
Feldkircherstrasse 100
9494 Schaan, LI
www.hilti.com

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-Ion (01) B18/5.2 Li-Ion (01)	Li-Ion battery (rechargeable)
Manufacturer	<i>Hilti Corporation</i> Feldkircherstrasse 100 LI – 9494 Schaan Liechtenstein www.hilti.com Phone: +1 352 323 3500	Responsible contact person at Hilti	<i>Mr. Stefan Tobler</i> Transport Manager Dangerous Goods GLD Global Transport & Warehousing E-Mail: Stefan.Tobler@hilti.com Phone: +41 79 893 8789


Cell model name	LG Chem INR18650HE4 / LGDBHE41865 INR19/66	Test laboratory	Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
			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	NO1117120059	
		Report Date	2018-01-22	

DESCRIPTION OF BATTERY			
Model number(s)	B22/5.2 Li-Ion (01) & B18/5.2 Li-Ion (01) (both types are identical in construction)		
Type of battery	Li-Ion 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 management system as required by this regulation			

TESTS AND RESULTS				
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		X	
38.3.4.5	T5 – External Short Circuit		X	
38.3.4.6	T6 – Impact/Crush (cell only)		X	
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 to 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

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

Signatory		
Place, Date	Name, Title	Company stamp and signature
Schaan, 2019-08-26	Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing	 Hilti Aktiengesellschaft Feldkircherstrasse 100 9494 Schaan Fürstentum Liechtenstein



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


Cell model name	muRata (Sony) US18650 VTC5 / INR19/66	Test laboratory	Name	TÜV SÜD Battery Testing GmbH
			Address	Daimlerstr. 15, 85748 Garching, Germany
			Phone	+49 89 32950-710
			E-Mail	
			website	www.tuev-sued.de
		Test report ID	BE99307004188-01	
		Report Date	2015-04-10	

DESCRIPTION OF BATTERY			
Model number(s)	B22/5.2 Li-Ion (01) & B18/5.2 Li-Ion (01) (both types are identical in construction)		
Type of battery	Li-Ion 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 management system as required by this regulation			

TESTS AND RESULTS				
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		X	
38.3.4.5	T5 – External Short Circuit		X	
38.3.4.6	T6 – Impact/Crush (cell only)		X	
38.3.4.7	T7 – Overcharge		X	
38.3.4.8	T8 – Forced discharge (cell only)		X	
Reference to assembled battery testing requirements UN 38.3.3		N/A	UN38.3.3(f)	UN38.3.3(g)
			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

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

Signatory		
Place, Date	Name, Title	Company stamp and signature
Schaan, 2019-08-26	Stefan Tobler Transport Manager Dangerous Goods GLD Global Transport & Warehousing	 Hilti Aktiengesellschaft Feldkircherstrasse 100 9494 Schaan Fürstentum Liechtenstein



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

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


Cell model name	Panasonic / Sanyo UR18650 NSX INR19/66	Test laboratory	Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
			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	NO1116010036	
		Report Date	2016-03-16	

DESCRIPTION OF BATTERY			
Model number(s)	B22/5.2 Li-Ion (01) & B18/5.2 (01) Li-Ion (both types are identical in construction)		
Type of battery	Li-Ion 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 management system as required by this regulation			

TESTS AND RESULTS				
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		X	
38.3.4.5	T5 – External Short Circuit		X	
38.3.4.6	T6 – Impact/Crush (cell only)		X	
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 to 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

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

Signatory		
Place, Date	Name, Title	Company stamp and signature
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Battery model name		B22/5.2 Li-Ion (01) B18/5.2 Li-Ion (01)	Li-Ion battery (rechargeable)
Manufacturer	<i>Hilti Corporation</i> Feldkircherstrasse 100 LI – 9494 Schaan Liechtenstein www.hilti.com Phone: +1 352 323 3500	Responsible contact person at Hilti	<i>Mr. Stefan Tobler</i> 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++* / INR19/66 *Model Details: INR18650-25R++ These cells may have optional alphanumeric characters or blanc, not related safety)	Test laboratory	Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
			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	

DESCRIPTION OF BATTERY			
Model number(s)	B22/5.2 Li-Ion (01) & B18/5.2 Li-Ion (01) (both types are identical in construction)		
Type of battery	Li-Ion 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 management system as required by this regulation			

TESTS AND RESULTS				
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		X	
38.3.4.5	T5 – External Short Circuit		X	
38.3.4.6	T6 – Impact/Crush (cell only)		X	
38.3.4.7	T7 – Overcharge		X	
38.3.4.8	T8 – Forced discharge (cell only)		X	
Reference to assembled battery testing requirements UN 38.3.3		N/A	UN38.3.3(f)	UN38.3.3(g)
			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

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Cell model name	Samsung SDI INR18650-25R++* / INR19/66 *Model Details: INR18650-25R++ These cells may have optional alphanumeric characters or blanc, not related safety)	Test laboratory	Name	SRICI Shanghai Research Institute of Chemical Industry Testing Centre
			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	

DESCRIPTION OF BATTERY			
Model number(s)	B22/5.2 Li-Ion (01) & B18/5.2 Li-Ion (01) (both types are identical in construction)		
Type of battery	Li-Ion battery (rechargeable)	Mass of battery [g]	780
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
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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		X	
38.3.4.6	T6 – Impact/Crush (cell only)		X	
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 to 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

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