

Safe - Performance - Sustainability - LiFePO4

 **SHIDO**®

LITHIUM ION
BATTERIES



Power Sports Applications



SHIDO®

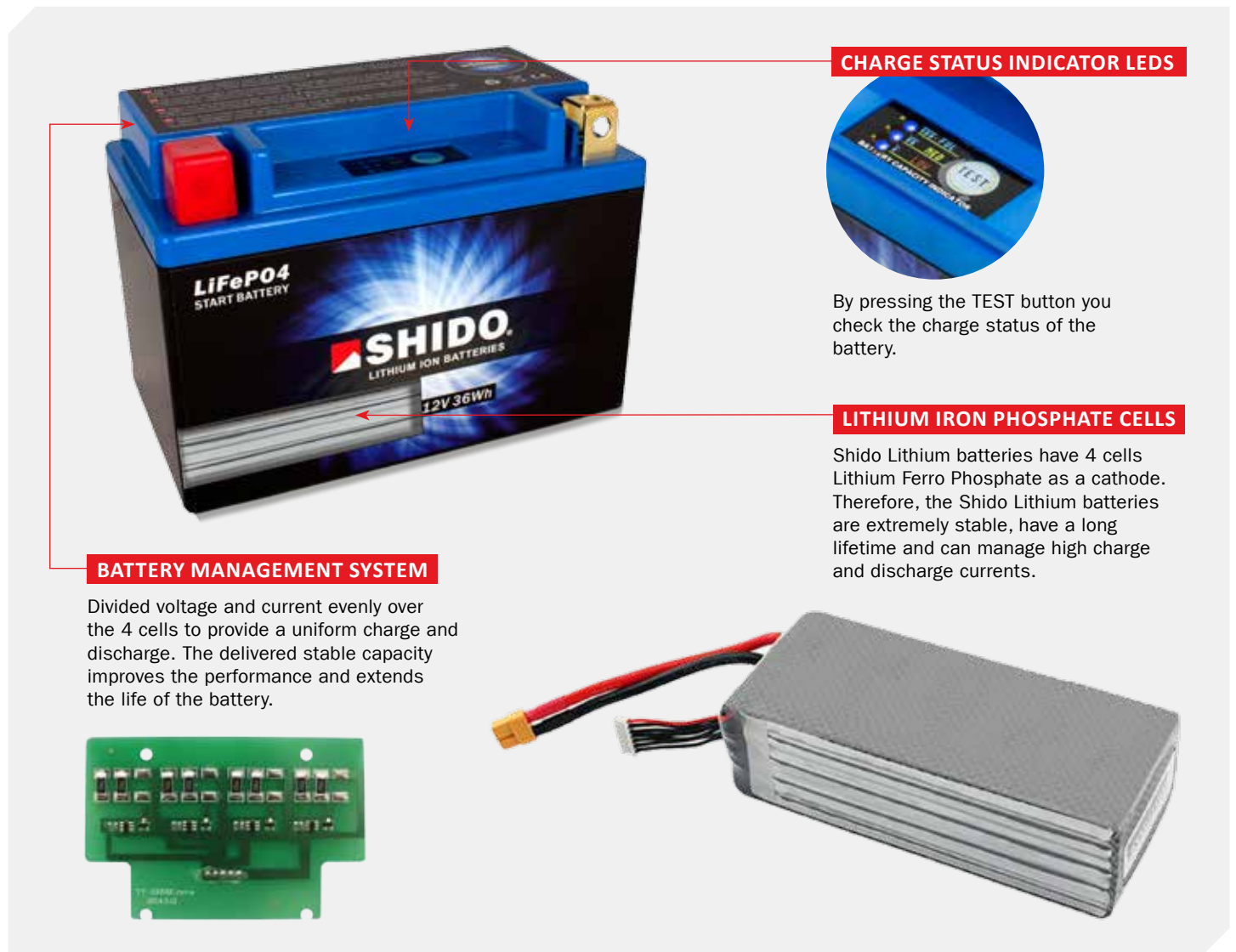
LITHIUM ION
BATTERIES



Lithium Iron Phosphate Technology

Shido Lithium batteries have 4 cells LiFePO₄ (Lithium Iron Phosphate) of 3.2 volts connected in series in order to reach an OCV of 12.8 volts. A perfect voltage to use as a starter battery for motorcycles. The electronic Battery Management System or BMS spread the charge

and discharge regularly over the four cells. Thanks to its small internal resistance a Shido Lithium battery can generate a very high starting current with little Ah. This starting power delivers a powerful and quick start of the vehicle.



CHARGE STATUS INDICATOR LEDS



By pressing the TEST button you check the charge status of the battery.

LITHIUM IRON PHOSPHATE CELLS

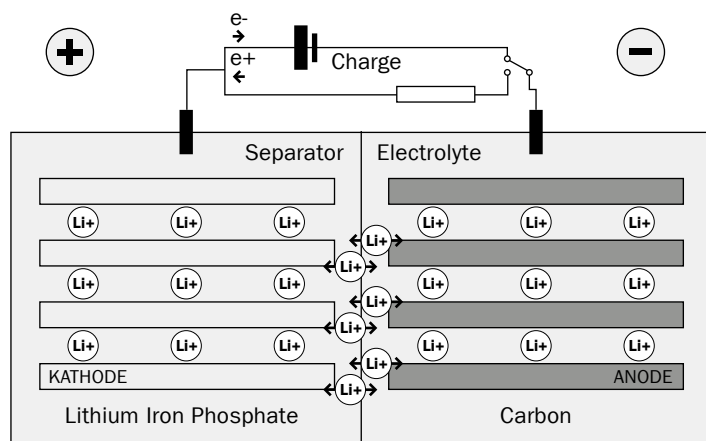
Shido Lithium batteries have 4 cells Lithium Ferro Phosphate as a cathode. Therefore, the Shido Lithium batteries are extremely stable, have a long lifetime and can manage high charge and discharge currents.

BATTERY MANAGEMENT SYSTEM

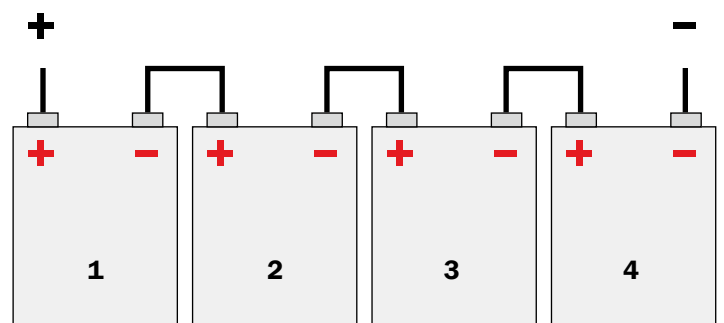
Divided voltage and current evenly over the 4 cells to provide a uniform charge and discharge. The delivered stable capacity improves the performance and extends the life of the battery.



Working Principles



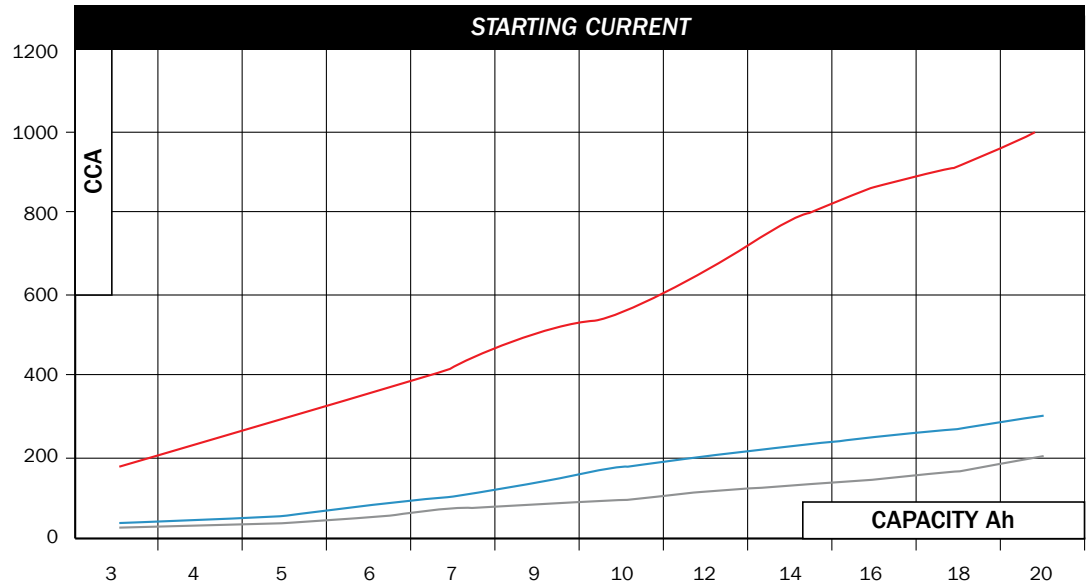
4 cells LiFePO₄ (Lithium Ferro Phosphate) 3.2 Volt in series - OCV is 12.8 volts.



Higher starting power

The starter needs sufficient starting current (CCA) to start. Depending on the necessary starting current a lead-acid battery requires a number of Ah to be able to generate this current. Shido Lithium batteries generate a similar or greater starting power than a comparable lead-acid battery with a smaller Ah value. This is because the internal resistance of a lithium battery is about three times less than a lead-acid battery. As a result, the maximum discharge current is 3 times higher than for a lead-acid battery. A higher starting current guarantees a smoother start.

- SHIDO Lithium battery
- Lead Acid maintenance free
- Lead Acid conventional



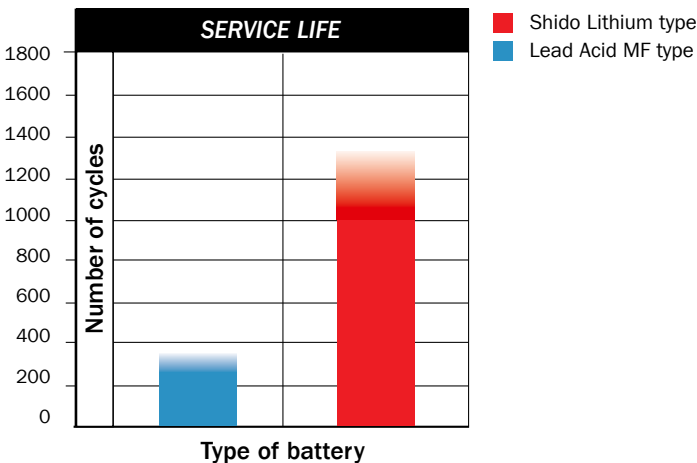
LEAD-ACID BATTERY		
TYPE	CAPACITY	STARTING CAPACITY
	Ah	CCA
YB4L-B	4	56
YTX7A-BS	6	105
YTZ10S	8,6	190
YB9-B	9	130
YTX14-BS	12	200

SHIDO LITHIUM BATTERY		
TYPE	CAPACITY	STARTING CAPACITY
	Ah	CCA
LTX4L-BS LION	1,6	95
LTX7A-BS LION	2,4	150
LTZ10S LION	4	240
LB9-B Q LION	3	180
LTX14-BS LION	4	240

DIFFERENCE
CCA %
+ 70 %
+ 43 %
+ 26 %
+ 38 %
+ 20 %

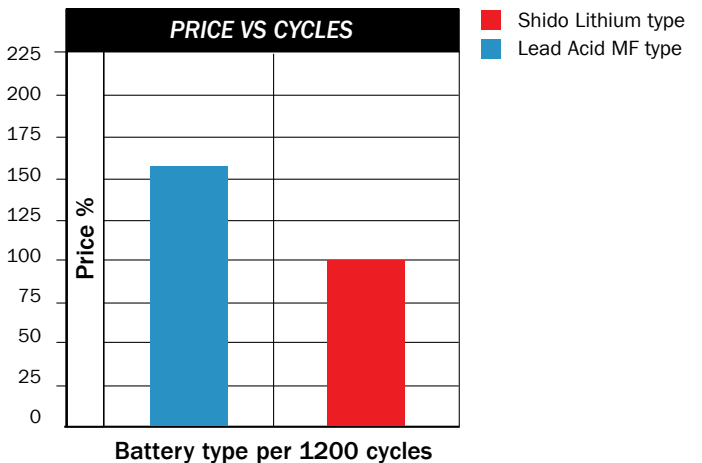
Longer life span

The service life of a battery is determined by the number of charge and discharge cycles. This is approximately 350 cycles for lead-acid batteries and about 1200 cycles for Shido Lithium (25% DOD or depth of discharge).



More economical

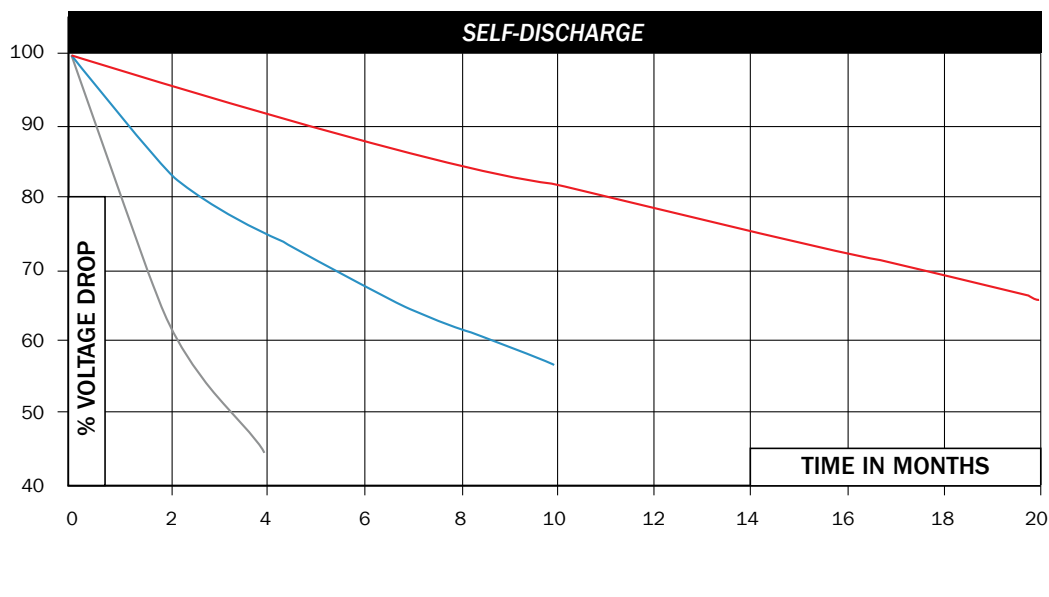
Over its entire lifetime a Lithium battery shows to be economical, in average about 2/3 the price of a lead-acid battery.



Low self-discharge

A lead-acid battery loses voltage relatively quickly through self-discharge when not using the motorcycle. After a winter the battery doesn't have sufficient capacity left to rotate the starter.

This self-discharge is very low for a Shido Lithium battery. Even after 2 years not using your motorcycle you still can start the engine. Note: Hidden power consumers such as alarm systems can discharge the battery much faster than only through the self-discharge.



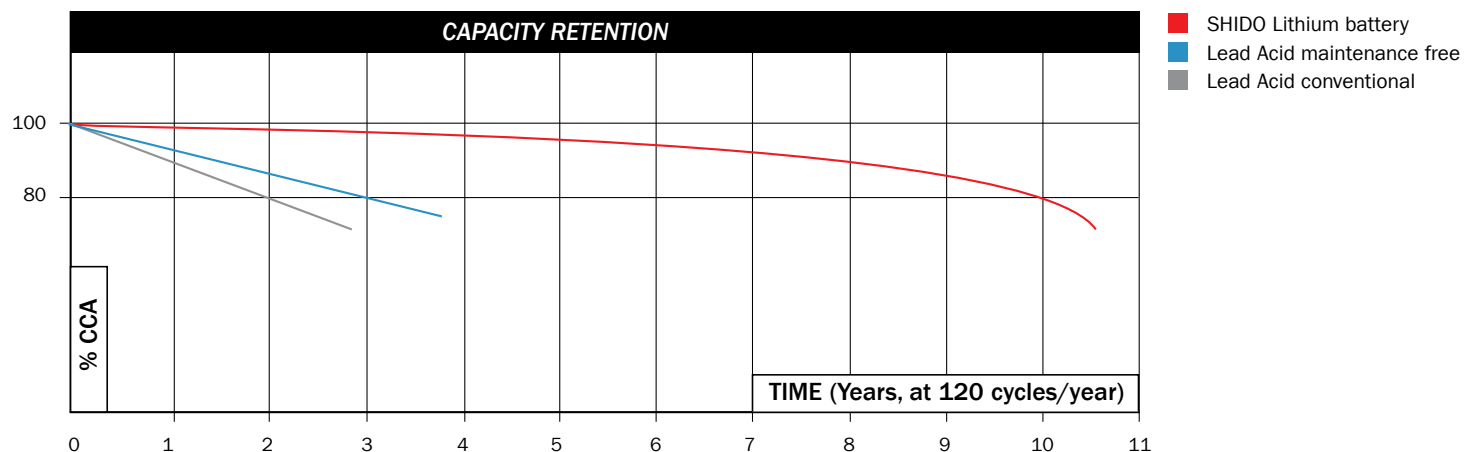
- SHIDO Lithium battery
- Lead Acid maintenance free
- Lead Acid conventional



Capacity retention

Typically for a lead-acid battery is the decrease of capacity in the course of time. A new lead-acid battery has a higher starting power than a battery pack that is already several years old. The starting current of a Shido Lithium remains all his life at a high level which

guarantees you a smooth start for a very long time. It is generally assumed that a battery must have at least 80% of its original capacity to be able to start the engine.



- SHIDO Lithium battery
- Lead Acid maintenance free
- Lead Acid conventional

Weight

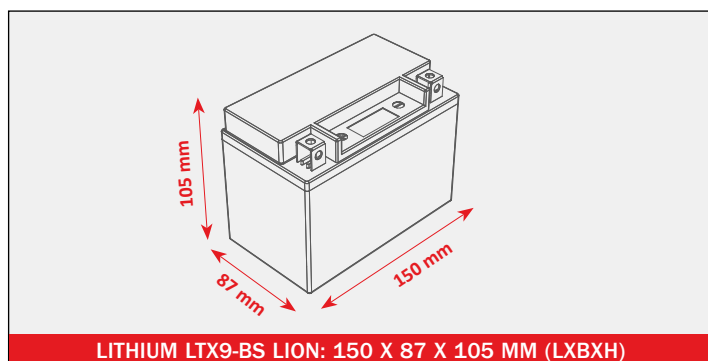
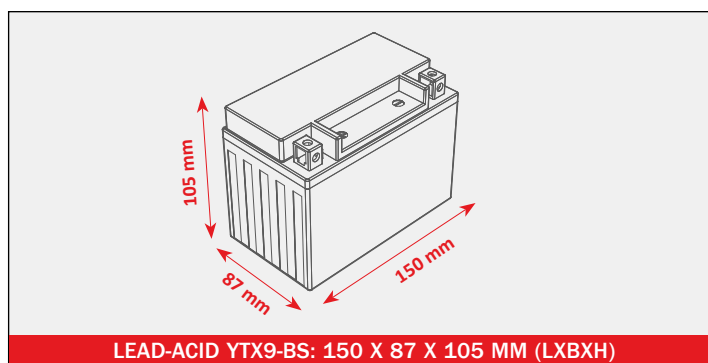
Shido Lithium batteries are on average 3 to 4 times lighter than a lead-acid battery.

LEAD-ACID BATTERY		SHIDO LITHIUM BATTERY		DIFFERENCE
ITEM	Kg	ITEM	Kg	Kg
YB4L-B	1,5	LTX4L-BS LION -S-	0,4	-1,1
YTX7A-BS	2,6	LTX7A-BS LION -S-	0,6	-2,0
YTZ10S	3,2	LTZ10S LION -S-	0,9	-2,3
YB9-B	3,1	LB9-B Q LION -S-	0,6	-2,5
YTX14-BS	4,6	LTX14-BS LION -S-	1,1	-3,5
YTX20-BS	6,7	LTX20L-BS Q LION -S-	1,4	-5,3



Dimensions

Shido Lithium batteries have exactly the same dimensions as the original lead-acid battery and can be connected easily via universal terminals. Some batteries are provided with spacers to approximate the dimensions of the lead-acid battery.



Charging

A Shido Lithium battery can be charged quickly with a high current (see max. A in the technical specifications). Use a charger that never and in any mode goes above 15 volts. The lithium cells would be damaged irreparably. The Shido Lithium batteries are equipped with a charge status indicator.



Safe

A Shido Lithium battery is completely maintenance-free, the composition LiFePO4 cannot explode and does not contain substances hazardous to the environment. All Shido Lithium batteries are IP68 waterproof.

Shido Lithium batteries cannot leak and may be installed in any position even upside down

IP68 WATERPROOF



Cross Reference

LEAD ACID ITEM	SHIDO LITHIUM ITEM
YT4L-BS	LTX4L-BS LION -S-
YB4L-B	LTX4L-BS LION -S-
YTX5L-BS	LTX5L-BS LION -S-
YTC4L-BS	LTX4L-BS LION -S-
YB5L-B	LB5L-B LION -S-
YTC5L-BS	LTX5L-BS LION -S-
12N5.5-3B	LB5L-B LION -S-
12N5.5-4A	LB5L-B LION -S-
12N5.5-4B	LB5L-B LION -S-
YTZ7S	LTZ7S LION -S-
YTX7A-BS	LTX7A-BS LION -S-
YTX7L-BS	LTX7L-BS LION -S-
YT7B-4	LT7B-BS LION -S-
YT7B-BS	LT7B-BS LION -S-
12N7-3B2	LB9-B Q LION -S-
YB7-A	LB9-B Q LION -S-
YB7L-B	LB9-B Q LION -S-
YB7L-B2	LB9-B Q LION -S-
HVT 09	LB9-B Q LION -S-
YTX9-BS	LTX9-BS LION -S-
YT9B-4	LT9B-BS LION -S-
YT9B-BS	LT9B-BS LION -S-
YTZ10S	LTZ10S LION -S-
12N9-3B	LB9-B Q LION -S-
YB9-B	LB9-B Q LION -S-
YB9A-A	LB9-B Q LION -S-
YB9L-A2	LB9-B Q LION -S-
YB9L-B	LB9-B Q LION -S-
YTX9A-BS	LB9-B Q LION -S-
YT12A-BS	LT12A-BS LION -S-
YT12B-4	LT12B-BS LION -S-
YT12B-BS	LT12B-BS LION -S-
YTX12-BS	LTX12-BS LION -S-
YB10L-A2	LB12AL-A2 Q LION -S-
YB10L-B2	LB12AL-A2 Q LION -S-
YTZ12S	LTZ12S LION -S-
YTZ14S	LTZ14S LION -S-
12N12A-4A-1	LB12AL-A2 Q LION -S-
YB12A-A	LB12AL-A2 Q LION -S-
YB12A-B	LB12AL-A2 Q LION -S-
YB12AL-A	LB12AL-A2 Q LION -S-
YB12AL-A2	LB12AL-A2 Q LION -S-
YB12B-B2	LB12B-B2 LION -S-
YB12C-A	LTX14AHL-B Q LI -S-
YTX14-BS	LTX14-BS LION -S-
YTX14AH-BS	LTX14AHL-BS Q LI -S-
YTX14AHL-BS	LTX14AHL-BS Q LI -S-
YTX14H-BS	LTX14-BS LION -S-
YTX14L-BS	LTX14L-BS LION -S-

LEAD ACID ITEM	SHIDO LITHIUM ITEM
YT14B-4	LT14B-BS LION -S-
YT14B-BS	LT14B-BS LION -S-
YTX15L-BS	LTX20L-BS Q LION -S-
12N14-3A	LTX14AHL-BS LION -S-
YB14-A2	LTX14AHL-BS Q LI -S-
YB14-B2	LTX14AHL-BS Q LI -S-
YB14A-A2	LTX14AHL-BS Q LI -S-
YB14L-A2	LTX14AHL-BS Q LI -S-
YB14L-B2	LTX14AHL-BS Q LI -S-
HVT 08	LB16AL-A2 LION -S-
HVT 03	LT14B-BS LION -S-
YTX16-BS	LTX16-BS LION -S-
YTX16-BS-1	LTX16-BS LION -S-
YB16AL-A2	LB16AL-A2 LION -S-
YB16B-A1	LTX16-BS LION -S-
HYB16A-AB	LTX16-BS LION -S-
51814	51913 LION -S-
YB18L-A	LTX20L-BS Q LION -S-
YTX20CH-BS	LTX20CH-BS LION -S-
YTX20H-BS	LTX20L-BS Q LION -S-
YTX20HL-BS	LTX20L-BS Q LION -S-
YTX20L-BS	LTX20L-BS Q LION -S-
YTX20-BS	LTX20L-BS Q LION -S-
YTX20A-BS	LTX20CH-BS LION -S-
51913	51913 LION -S-
YB16-B	LTX20L-BS Q LION -S-
YB16CL-B	LTX20L-BS Q LION -S-
YB16L-B	LTX20L-BS Q LION -S-
Y50-N18A-A	LTX20L-BS Q LION -S-
Y50-N18L-A	LTX20L-BS Q LION -S-
Y50-N18L-A3	LTX20L-BS Q LION -S-
Y50-N18L-A-CX	LTX20L-BS Q LION -S-
HVT 01	LTX20L-BS Q LION -S-
SY50-N18L-AT	LTX20L-BS Q LION -S-
YTX24H-BS	LTX20L-BS Q LION -S-
YTX24HL-BS	LTX24HL-BS LION -S-
HVT 04	LTX20L-BS Q LION -S-
HVT 05	LTX20L-BS Q LION -S-
HVT 06	LTX20L-BS Q LION -S-
Y60-N24AL-B	LIX30L-BS Q LION -S-
Y60-N24L-A	LIX30L-BS Q LION -S-
YHD-12	LIX30L-BS Q LION -S-
53030	LIX30L-BS Q LION -S-
Y60-N30L-A	LIX30L-BS Q LION -S-
YB30CL-B	LIX30L-BS Q LION -S-
HVT 07	LIX30L-BS Q LION -S-
HVT 02	LIX30L-BS Q LION -S-
YTX30L-BS	LIX30L-BS Q LION -S-

Shido Lithium data

SHIDO LITHIUM REF	VOLT (V)	CAPACITY @ 10HR (Ah)	DIMENSIONS incl. SPACERS (mm) (+/- 2 mm)			WEIGHT (Kg)	START CAPACITY (CCA)	ENERGY (Wh)	CHARGE CURRENT (A)		LAYOUT
			L	W	H				STD	MAX	
LB5L-B LION -S-	12	1,6	120	60	120	0,4	95	19	1	8	[- +]
LTX4L-BS LION -S-	12	1,6	113	70	85	0,4	95	20	1	8	[- +]
LTX5L-BS LION -S-	12	1,6	113	70	105	0,4	95	20	1	5	[- +]
LTKTM04L LION -S-	12	2	89	49	90	0,5	120	24	1	10	[- +]
LTX5S LION -S-	12	2	113	69	85	0,5	120	24	1	10	[- +]
LTX7A-BS LION -S-	12	2,4	150	87	93	0,6	150	30	1,5	12	[+ -]
LTX7L-BS LION -S-	12	2,4	113	69	125	0,6	150	30	1,5	12	[- +]
LTZ7S LION -S-	12	2,4	113	69	105	0,6	150	30	1	12	[- +]
LB9-B Q LION -S-	12	3	134	75	134	0,6	180	36	1,5	12	[- +]
LT7B-BS LION -S-	12	3	150	65	92	0,7	180	36	1,5	15	[+ -]
LT9B-BS LION -S-	12	3	150	65	106	0,7	180	36	1,5	15	[+ -]
LTX9-BS LION -S-	12	3	150	87	105	0,7	180	36	1,5	15	[+ -]
LT12A-BS LION -S-	12	3,5	150	87	107	0,9	210	42	2	18	[+ -]
LB12AL-A2 Q LION -S-	12	4	130	75	160	0,9	240	48	2	20	[- +]
LTX12-BS LION -S-	12	4	150	87	130	0,9	240	42	2	18	[+ -]
LTX14-BS LION -S-	12	4	150	87	145	1,1	240	48	2	20	[+ -]
LTX14AHL-BS Q LI -S-	12	4	134	75	168	1,1	240	48	2	20	[- +]
LTX14L-BS LION -S-	12	4	150	87	145	1,1	240	48	2	20	[- +]
LTZ10S LION -S-	12	4	150	87	93	0,9	240	48	2	20	[+ -]
LB16AL-A2 LION -S-	12	5	150	65	144	1,1	300	60	2,5	25	[- +]
LT12B-BS LION -S-	12	5	150	65	130	1,1	300	60	2,5	25	[+ -]
LT14B-BS LION -S-	12	5	150	65	144	1,1	300	60	2,5	25	[+ -]
LTZ12S LION -S-	12	5	150	87	110	1,1	300	60	2,5	25	[+ -]
LTZ14S LION -S-	12	5	150	87	110	1,1	300	60	2,5	25	[+ -]
LTX16-BS LION -S-	12	6	150	87	164	1,4	360	72	3	24	[+ -]
LTX20CH-BS LION -S-	12	6	150	87	164	1,4	360	72	3	24	[+ -]
LTX20L-BS Q LION -S-	12	7	175	87	155	1,4	420	84	3,5	28	[- +]
LTX24HL-BS LION -S-	12	7	175	87	163	1,7	420	84	3,5	28	[- +]
51913 LION -S-	12	7,5	181	77	170	1,7	420	90	4	28	[- +]
LIX30L-BS Q LION -S-	12	8	167	124	163	2	480	96	4	32	[- +]

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