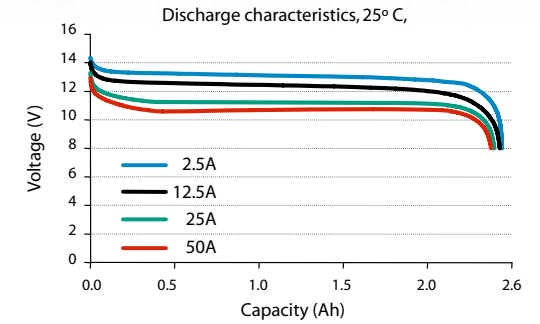
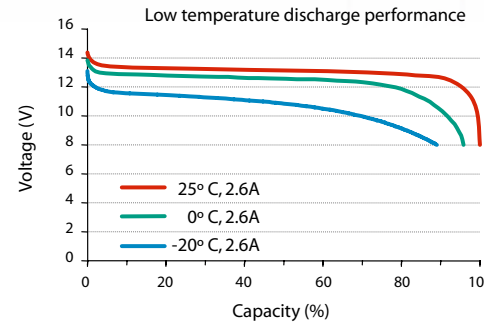




super B Lithium batteries to perform better

STARTER BATTERY FEATURES | Light Weight
More Power
Longer Service Life

Super B Lithium Ion Starter Batteries - Energie supply like never before – light weight, compact design with very high pulse currents in extreme ambient temperatures – “The very profitable long-term investment”

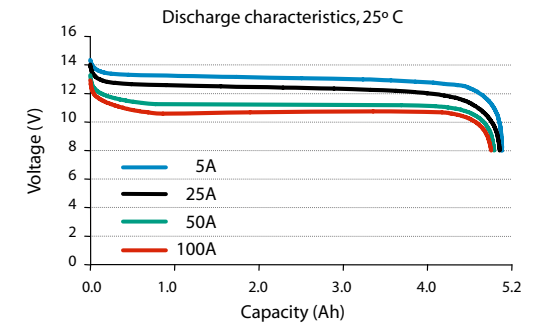
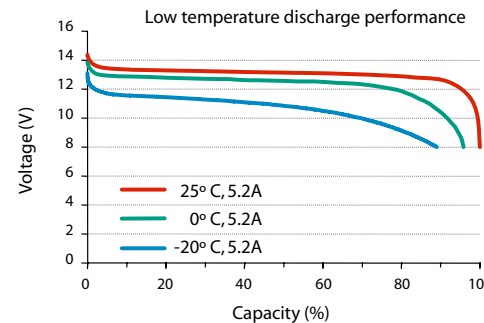


Super B batteries offer significant advantages over conventional lead/acid batteries:

- Up to 80% weight saving
- Much smaller – only 1/3 of the size
- Fast charge capability: 1- 4C possible
- One on one interchangeable with lead/acid - Gel - AGM
- Flexible mounting positions
- High discharge current up to 30C continuous
- Discharge pulse current 65C
- Low self-discharge rate: ca. 10% per year
- Integrated VMS - passive cell balancing
- Minimum of 5 year service life
- Excellent extreme temperature range starting up to minus 30 degrees Celsius

Equivalent to the following lead/acid batteries:

- Super B 2600: 5 to 7Ah
- Super B 5200: 10 to 12Ah
- Super B 7800: 12 to 20Ah
- Super B 10P : 20 to 32Ah
- Super B 15P : 40 to 60Ah
- Super B 20P : 70 to 100Ah
- Super B 25P: 100 to 130Ah



Super B batteries are based on Lithium Ion Phosphate Technology (LiFePO4), better known as Lithium-Ion.



super B Lithium batteries to perform better

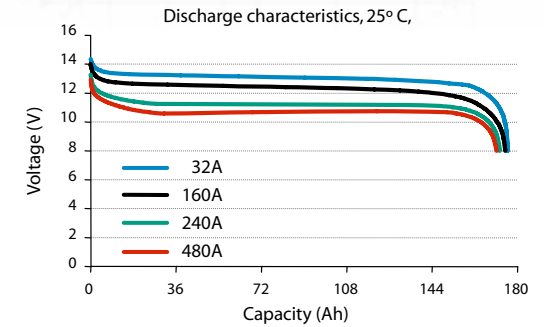
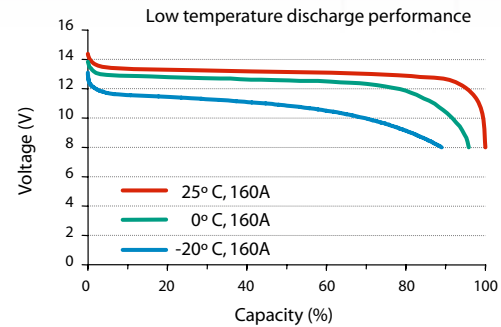
SLI / Starter Batteries	SB12V2600P-AC	SB12V5200P-BC	SB12V7800P-CC	SB12V10P-DC	SB12V15P-EC	SB12V20P-FC	SB12V15P-SC	SB12V20P-SC	SB12V25P-SC
Battery Designation	4IFP36/115/85	4IFP63/115/85-2	4IFP83/121/99-3	4IFP83/121/125-4	4IFP83/121/182-6	4IFP83/121/239-8	4IFP78/201/134-6	4IFP97/250/142-8	4IFP97/250/142-10
Height (mm)	83,50 / 84,50	83,50 / 84,50	97,50 / 98,50	123,50 / 124,50	180,50 / 181,50	237,50 / 238,50	132,5 / 133,5	140,30 / 141,30	140,30 / 141,30
Diameter (mm)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Width (mm)	113,50 / 114,50	113,50 / 114,50	119,50 / 120,50	119,50 / 120,50	119,50 / 120,50	119,50 / 120,50	199,50 / 200,50	248,35 / 249,35	248,35 / 249,35
Thickness (mm)	34,50 / 35,50	61,50 / 62,50	81,50 / 82,50	81,50 / 82,50	81,50 / 82,50	81,50 / 82,50	76,5 / 77,5	95,25 / 96,25	95,25 / 96,25
Nominal voltage (V)	13,2V	13,2V	13,2V	13,2V	13,2V	13,2V	13,2V	13,2V	13,2V
Charge method	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV
End of charge voltage (V)	15,2V	15,2V	15,2V	15,2V	15,2V	15,2V	15,2V	15,2V	15,2V
End of charge voltage (V) for endurance (cycle life)	14,4V	14,4V	14,4V	14,4V	14,4V	14,4V	14,4V	14,4V	14,4V
Charge current (A)	10A (4C)	20A (4C)	30A (4C)	40A (4C)	60A (4C)	80A (4C)	60A (4C)	80A (4C)	100A (4C)
Charge current (A) for endurance (cycle life)	3A (1C)	6A (1C)	9A (1C)	12A (1C)	18A (1C)	24A (1C)	18A (1C)	24A (1C)	30A (1C)
End-of-discharge voltage (V)	8V	8V	8V	8V	8V	8V	8V	8V	8V
End-of-discharge voltage (V) for endurance (cycle life)	10V	10V	10V	10V	10V	10V	10V	10V	10V
Discharge current (A)	70A (30C)	140A (30C)	210A (30C)	280A (30C)	420A (30C)	560A (30C)	420A (30C)	560A (30C)	700A (30C)
Discharge current (A) for endurance (cycle life)	2.3A (1C)	4.6A (1C)	6.90A (1C)	9.20A (1C)	13.8A (1C)	18.4A (1C)	13.8A (1C)	18.4A (1C)	23A (1C)
Discharge pulse current (A) (10 seconds)	120A (52C)	240A (52C)	360A (52C)	480A (52C)	720A (52C)	960A (52C)	720A (52C)	960A (52C)	1200A (52C)
Discharge pulse current (A) (1 second)	150A (65C)	300A (65C)	450A (65C)	600A (65C)	900A (65C)	1200A (65C)	900A (65C)	1200A (65C)	1500A (65C)
Discharge performance at 20 °C (rated capacity)	2.3Ah / 30.36Wh	4.6Ah / 60.72Wh	6.90Ah / 91.08Wh	9.20Ah / 121.44Wh	13.8Ah / 182.16Wh	18.4Ah / 242.88Wh	13.8Ah / 182.16Wh	18.4Ah / 242.88Wh	23Ah / 303.6Wh
Discharge performance at -20 °C (capacity)	2.07Ah / 27.324Wh	4.14Ah / 54.648Wh	6.21Ah / 81.972Wh	8.28Ah / 109.296Wh	12.42Ah / 163.944Wh	16.56Ah / 218.592Wh	12.42Ah / 163.944Wh	16.56Ah / 218.592Wh	20.7Ah / 273.24Wh
High rate discharge performance at 20 °C (capacity)	2.185Ah / 28.842Wh	4.37Ah / 57.684Wh	6.555Ah / 86.526Wh	8.74Ah / 115.368Wh	13.11Ah / 173.052Wh	17.48Ah / 230.736Wh	13.11Ah / 173.052Wh	17.48Ah / 230.736Wh	21.85Ah / 288.42Wh
Operating temperature range	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C
Storage temperature range	-50°C to +60°C	-50°C to +60°C	-50°C to +60°C	-50°C to +60°C	-50°C to +60°C	-50°C to +60°C	-50°C to +60°C	-50°C to +60°C	-50°C to +60°C
Weight	0,450kg	0,850kg	1,3kg	1,7kg	2,5kg	3,2kg	2,9kg	3,6kg	4,2kg



super B Lithium batteries to perform better

ENERGY BATTERIES FEATURES | Light Weight
More Power
Longer Service Life

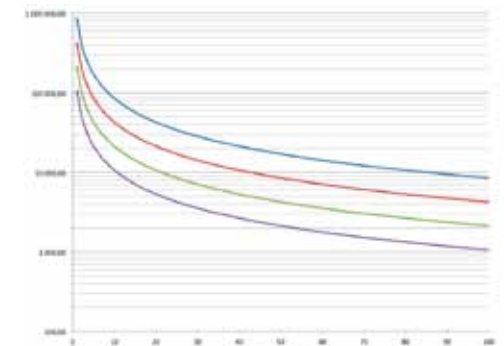
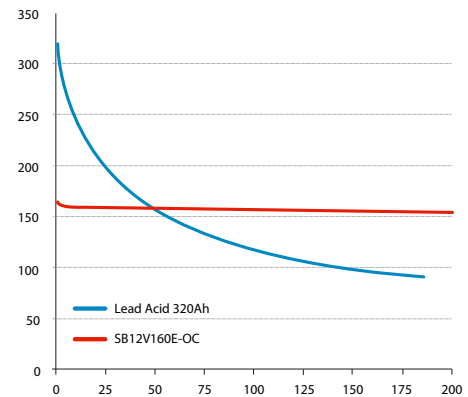
Super B Lithium Ion Energy Batteries – Energy supply like never before- light weight, compact and safest Lithium Battery with BMS
super B batteries for long-term investment



Super B batteries offer significant advantages over conventional lead/acid batteries:

- Lithium Ion Phosphate (LiFePO4)
- Safest Lithium Technology
- Superior abuse tolerance
- High capacity
- Low weight
- High cycle count
- Low maintenance
- One on one interchangeable with lead/acid batteries
- High discharge current, 3C continuous, 5C pulse
- Can be charged with regular AGM charger
- Fast charging, 1C
- CANOpen Interface for battery monitoring
- Battery monitoring / history storage
- Adaptive cell balancing
- Serial string equalization
- Serial string connection up to 1150V DC
- External BMS Relay, latching (bi-stable)
- External BMS cut-off switch, CAN controlled

Application:
Renewable Energy
Industrial Applications
Marine
Automotive





super B Lithium batteries to perform better

Traction Batteries	SB12V3200E-AC	SB12V6400E-BC	SB12V10E-CC	SB12V13E-DC	SB12V19E-EC	SB12V26E-FC	SB12V32E-SC	SB12V50E-MC	SB12V100E-NC	SB12V160E-ZC	SB12V4.2kW-AR	SB24V4.2kW-AR
Battery Designation	4IFP36/115/85	4IFP63/115/85-2	4IFP83/121/99-3	4IFP83/121/125-4	4IFP83/121/182-6	4IFP83/121/239-8	4IFP97/250/142-10	4IFP178/271/246	4IFP191/366/266	4IFP227/415/315	4IFP486/484/311	8IFP486/484/311
Height (mm)	83,50 / 84,50	83,50 / 84,50	97,50 / 98,50	124,00 / 124,50	180,50 / 181,50	237,50 / 238,50	140,30 / 141,30	244,50 / 245,50	264,50 / 265,50	313,00 / 314,00	309,50 / 310,50	313,00 / 314,00
Diameter (mm)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Width (mm)	113,50 / 114,50	113,50 / 114,50	119,50 / 120,50	119,50 / 120,50	119,50 / 120,50	119,50 / 120,50	248,35 / 249,35	269,50 / 270,50	364,50 / 365,50	413,50 / 414,50	482,50 / 483,50	413,50 / 414,50
Thickness (mm)	34,50 / 35,50	61,50 / 62,50	81,50 / 82,50	81,50 / 82,50	81,50 / 82,50	81,50 / 82,50	95,25 / 96,25	174,50 / 175,50	189,50 / 190,50	225,00 / 226,00	484,50 / 485,50	225,00 / 226,00
Nominal voltage (V)	12.8V	12.8V	12.8V	12.8V	12.8V	12.8V	12.8V	13,2V	13,2V	13,2V	13,2V	26,4V
Charge methode	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV	CCCV
End of charge voltage (V)	16,4V	16,4V	16,4V	16,4V	16,4V	16,4V	16,4V	15,4V	15,4V	15,4V	15,4V	30,8V
End of charge voltage (V) for endurance (cycle life)	14,6V	14,6V	14,6V	14,6V	14,6V	14,6V	14,6V	14,6V	14,6V	14,6V	14,6V	29,2V
Charge current (A)	3,2	6,4	12,8	16	19,2	25,6	32	50A (1C)	100A (1C)	160A (1C)	250A (1C)	160A (1C)
Charge current (A) for endurance (cycle life)	1,6	3,2	6,4	8	9,6	12,8	16	16.5A (C/3)	33A (C/3)	52.8A (C/3)	105.6A (C/3)	52.8A (C/3)
End-of-discharge voltage (V)	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	16V
End-of-discharge voltage (V) for endurance (cycle life)	10V	10V	10V	10V	10V	10V	10V	10V	10V	10V	10V	20V
Discharge current (A)	12	24	36	48	72	96	120	150A (3C)	300A (3C)	480A (3C)	250A (1.5C)	480A (3C)
Discharge current (A) for endurance (cycle life)	3,2	6,4	9,6	12,8	19,2	25,6	32	16.5A (C/3)	33A (C/3)	52.8A (C/3)	105.6A (C/3)	52.8A (C/3)
Discharge pulse current (A) (10 seconds)	28	56	84	112	168	224	280	400A (8C)	800A (8C)	1280A (8C)	250A (1.5C)	1280A (8C)
Discharge pulse current (A) (60 second)	28	56	84	112	168	224	280	250A (5C)	500A (5C)	800A (5C)	250A (1.5C)	800A (5C)
Discharge performance at 20 °C (rated capacity)	3.2Ah / 42.24Wh	6.4Ah / 84.48Wh	9.60Ah / 126.72Wh	12.8Ah / 168.96Wh	19.2Ah / 253.44Wh	25.6Ah / 337.92Wh	32Ah / 422.4Wh	50Ah / 660Wh	100Ah / 1320Wh	160Ah / 2112Wh	320Ah / 4224Wh	160Ah / 4224Wh
Discharge performance at -20 °C (capacity)	2.56Ah / 33.792Wh	5.12Ah / 67.584Wh	7.68Ah / 101.376Wh	10.24Ah / 135.168Wh	17.28Ah / 228.096Wh	23.04Ah / 304.128Wh	28.8Ah / 380.16Wh	32.5Ah / 429Wh	65Ah / 858Wh	104Ah / 1372.8Wh	208Ah / 2745.6Wh	104Ah / 2745.6Wh
High rate discharge performance at 20 °C (capacity)	2.88Ah / 38.016Wh	5.76Ah / 76.032Wh	8.64Ah / 114.048Wh	11.52Ah / 152.064Wh	15.36Ah / 202.752Wh	20.48Ah / 270.336Wh	25.6Ah / 337.92Wh	45Ah / 594Wh	90Ah / 1188Wh	144Ah / 1900.8Wh	288Ah / 3801.6Wh	144Ah / 3801.6Wh
Operating temperature range (Charge)	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	0°C to +45°C	0°C to +45°C	0°C to +45°C	0°C to +45°C	0°C to +45°C
Operating temperature range (Discharge)	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Storage temperature range	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Weight	0,450kg	0,850kg	1,3kg	1,7kg	2,5kg	3,2kg	4,2kg	11kg	20kg	28,3kg	57kg	57kg