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**ALCAD**



# **BLSel RANGE**

Lead Selenium Blocks

# BLSe Range

## Block Lead Selenium

### GENERAL

Alcad's BLSe range consists of 6V and 12V blocks. The range combines the technological benefits of a lead selenium alloy grid with the versatility of multi-cell blocks.

The multi-cell BLSe range offers these additional benefits:

- ▶ Smaller space requirement than single cells of the same capacity
- ▶ Fewer connections for reduced installation costs
- ▶ external intercell connections allow electrical measurements to be taken for each cell
- ▶ external intercell connections allow removal of one cell from the string without having to replace an entire block.

### CAPACITY

The available capacity of a cell varies with the discharge rate, state of charge, temperature and other factors. The Ah capacity used in this brochure is calculated at the 8-hour discharge rate to 1.75V at 77°F (25°C).

### ELECTROLYTE

The electrolyte is a solution of sulfuric acid ( $H_2SO_4$ ) and de-ionized water with specific gravity of 1.240.

### PLATES

Both the positive and negative plates are of pasted construction with grids cast from lead selenium alloy.

### SEPARATORS

Microporous plastic separators matched with fiberglass mats allow maximum electrolyte utilization while minimizing internal resistance.

### CONTAINERS

Injection molded in high-quality, acid-resistant styrene acrylonitrile (SAN). Containers are transparent for easy inspection of cell status. Also available in flame-retardant version.

### LIDS

Lids are molded from gray SAN and joined by tongue and groove to the container, forming a permanent air- and liquid-tight seal. Also available in flame-retardant version.

### VENT CAPS

Each cell is fitted with a vent that prevents acid spray from escaping and external sparks from igniting gases within the cell. The flip-top design provides additional safety. Because the vent does not have to be removed for water addition, it maintains its flame arrestor properties.

### TECHNOLOGICAL ADVANTAGES

Antimony and Calcium are the two most common hardeners used in lead grids. Both metals produce desirable results but are plagued with inherent deficiencies.

Adding calcium provides stable float charge characteristics and low water consumption. However, it also leads to unpredictable failure, poor cycling ability and wide voltage spreads.

Antimony increases the cycling ability and provides a



predictable life. However, antimonial poisoning leads to increased water consumption, reduced charge efficiency and increased open circuit losses.

Replacing a small amount of antimony with selenium in the grid alloy produces a fine, dense grain structure. The alloy virtually eliminates inter-granular corrosion, one of the most common causes of cell failure. The BLSe, therefore, combines the advantages of calcium and antimony without suffering the negative effects inherent in those alloys.

Some of the virtues of the design include:

- ▶ Long life with maximum reliability
- ▶ Improved charge efficiency
- ▶ Stable float charge characteristics
- ▶ Good deep discharge capability (>1000 cycles)
- ▶ Excellent high-rate performance
- ▶ Very little positive plate growth
- ▶ Extended topping-up intervals

# CELL SPECIFICATIONS

## CHARGING

	Float (V)	Equalize (V)
6V blocks	6.69	6.99 - 7.20
12V blocks	13.38	13.98 - 14.40

## SHORT CIRCUIT & INTERNAL RESISTANCE

Typical values for new, fully-charged block at 77°F

Block Type	Short Circuit (A)	Internal Resistance (mΩ)
BLSe 12-50	825	14.75
BLSe 12-100	1050	11.56
BLSe 6-150	1920	3.16
BLSe 6-200	2560	2.37
BLSe 6-250	3200	1.90
BLSe 6-300	3840	1.59

## PHYSICAL CHARACTERISTICS

Positive plate dimensions	9.00"H x 7.10"L x .25"W
Negative plate dimensions	8.80"H x 7.10"L x .19"W
Sediment space	0.6"
Container material	Transparent SAN
Cover material	Gray SAN
Separators	Microporous plastic/fiberglass
Terminal post type	Lead with M10 threaded brass insert
Plate suspension	Bottom supported
Interblock connectors	Insulated flexible connector
Intercell connectors	Insulated solid copper
Connector hardware	Insulated M10
Vent caps	Flip-top flame arrestors
SG of fully-charged cell	1.240 ± .010

## CAPACITIES, WEIGHTS & DIMENSIONS

Cell Type	Voltage	Ah Capacity	Dimensions (in.)			Weight (lb.)		Volume of Acid (gal.)	No. of Posts
			Length	Width	Height	Empty	Filled		
BLSe 12-50	12	52	10.7	8.1	15.2	70.1	92.1	2.12	2
BLSe 12-100	12	103	15.0	8.1	15.2	100.8	136.2	3.43	2
BLSe 6-150	6	154	10.7	8.1	15.2	69.2	95.1	2.51	2
BLSe 6-200	6	206	15.0	8.1	15.2	89.3	128.5	3.80	2
BLSe 6-250	6	254	15.0	8.1	15.2	103.0	137.5	3.33	2
BLSe 6-300	6	285	15.0	8.1	15.2	118.0	150.8	3.17	2

## DISCHARGE CURRENT TO 1.75V AT 77°F

Cell Type	Minutes								Hours			
	1	5	7	10	12	15	20	30	1	2	3	8
BLSe 12-50	111.6	87.4	78.9	69.7	65.0	60.0	53.4	43.6	29.2	18.5	13.8	6.5
BLSe 12-100	221.0	173.1	156.2	138.0	128.7	118.8	105.7	86.3	57.8	36.6	27.3	12.9
BLSe 6-150	331.5	259.6	234.3	207.0	193.1	178.2	158.6	129.5	86.7	54.9	41.0	19.3
BLSe 6-200	441.9	346.1	312.4	276.0	257.4	237.6	211.5	172.7	115.6	73.3	54.6	25.7
BLSe 6-250	510.0	417.0	385.7	348.0	327.5	301.0	267.0	217.0	143.0	88.0	65.2	31.8
BLSe 6-300	611.3	478.8	432.2	381.8	356.1	328.7	292.5	238.8	160.0	101.3	75.6	35.6

## DISCHARGE CURRENT TO 1.81V AT 77°F

Cell Type	Minutes								Hours			
	1	5	7	10	12	15	20	30	1	2	3	8
BLSe 12-50	91.8	73.8	67.7	61.2	57.5	53.2	43.7	39.8	27.6	17.7	13.3	6.4
BLSe 12-100	181.8	146.1	134.0	121.2	113.9	105.3	86.5	78.8	54.6	35.0	26.3	12.7
BLSe 6-150	272.6	219.2	201.1	181.8	170.8	158.0	129.8	118.2	82.0	52.6	39.5	19.0
BLSe 6-200	363.5	292.2	268.1	242.4	227.7	210.7	173.1	157.6	109.3	70.1	52.7	25.3
BLSe 6-250	411.0	349.8	327.9	300.0	285.0	264.0	237.0	197.0	132.5	84.0	63.2	30.6
BLSe 6-300	502.9	404.3	370.9	335.3	315.0	291.4	239.4	218.0	151.2	97.0	72.9	35.1



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