

## SEC NICKEL CADMIUM

# SEC NI-CAD BATTERIES

## NICKEL CADMIUM - VALVE REGULATED

### Extreme Low Maintenance Ni-Cad Cells

SEC Industrial Battery Company's Nickel Cadmium Valve Regulated batteries are available for a wide range of applications.

### APPLICATIONS

- Telecommunications
- UPS Systems
- Power and Substations
- Oil and Gas Refineries
- Railway
- Diesel Engine Starting
- Emergency Lighting
- Traction Batteries
- Photovoltaic & Wind Power
- Offshore Equipment
- Onboard Ship Equipment
- Process Control



Approved by Telecom and Power Authorities Worldwide

**Series Type KGL...P - For Low Discharge Rates**  
12 to 1300 A/h in Plastic Cases

**Series Type KGM...P - For Medium Discharge Rates**  
11 to 1250 A/h in Plastic Cases

Nickel Cadmium valve regulated cells using pocket plate technology is the latest battery concept for applications requiring absolute reliability with minimum of routine maintenance. With a design life of more than 20 years they have proved to be a very reliable DC power source in float service or cyclic applications in harsh conditions with temperature up to 60° C.

### Specific Design Features:

- \* Combination of well proven pocket plate design and extreme low maintenance concept
- \* Exceptionally long life with minimized maintenance no need for topping up but is possible if required
- \* Recombination rate > 70% ( IEC 62259) - up to 90% can be reached depending on temperature and float voltage
- \* Available as KGL---P for low discharge rates and KGM---P range for medium discharge rates
- \* Exceptional capacity range from 11 Ah. to 1390Ah.
- \* Same dimensions as standard pocket plate cells for easy replacement
- \* Cell designed for economical replacement and to eliminate risk of leakage
- \* Cell cases formed by injection moulding out of one piece
- \* Only lid is welded on the cell case - weld seam lies over the electrolyte level
- \* Big cell containers are moulded out of one piece - not shaped through several small cell container - this is UNIQUE.
- \* SEC single cell design eliminates risk of faulty weld seams on the side and on the bottom of the cell
- \* Problem with bloc cells : aging of plastic causes higher risk of leakage at weld seams
- \* Economical replacement - If one cell fails only one cell has to be replaced

Equalizing voltage range: 1.55 to 1.65 Volts/cell.  
SEC Nickel Cadmium range comprises three types of high, medium and low rate discharge

### Charging Output Current

The batteries are supplied in single cell units complete with inter-cell connectors, pole insulation and cable lugs.

Electrolyte is supplied filled or in solid dry flake for filling on site.

The batteries can be supplied in taped blocks or wooden crates. Mechanical data for taped blocks and wooden crates available on request.

### KGL - P Range

The L range is designed for applications where the battery is required to provide energy over relatively long discharge period. Typical uses are power back-up and bulk Energy storage.

### KGM - P Range

The M range is designed for applications where the batteries are required to sustain electrical loads for between 30 mins to 3 hours or for mixed loads which involves a mixture of high and low discharge rates. The range is typically used in power back-up applications.

### Capacity

The nominal rated capacity C5 of a cell is the capacity in ampere hours (A/H) available at the 5-hour discharge rate to 1.0 volts/cell, in accordance with DIN EN 60623 and IEC 623. Nominal Voltage is 1.2 volts/Cell.

### Charging

In general all standard charging methods with W-, I-, IU-characteristics are possible.

### Constant Voltage Charging

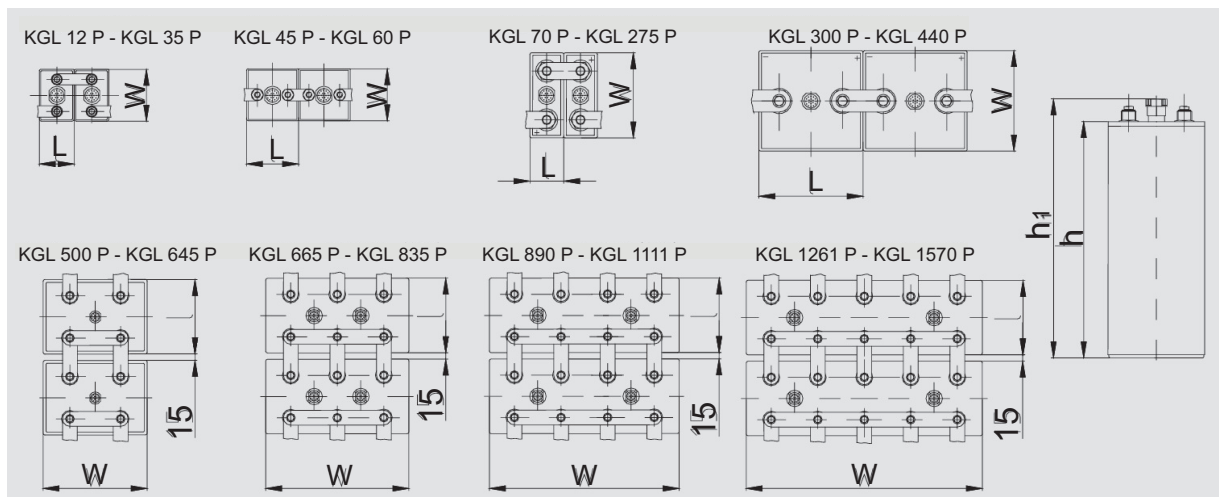
Float Voltage range: 1.40 to 1.42 Volts/cell.  
The maximum charging output current is 2.5 at 25° C, provided that the charging Voltage Limit is not higher than 1.68 volts/cell.  
The minimum recommended charging rate is

### Constant Current Charging

Standard charge: 15 for 7 to 8 hours  
Fast recharge: 2 I5 for 2.5 hours,  
Followed by 15 for 2 to 3 hours  
Minimum effective rate: 1.5 mA/Ah  
Temperature coefficient: -3 to -4 mV/°C  
The electrolyte temperature should never exceed 45°C during charging.

## Cell Type KGL---P in Plastic Case single cell - Low Discharge - Specification

Cell Type	Nom. Cap. C3 (Ah.) 1.00V	Dimensions Single Cell (mm)			Terminal Bolt Diameter	Number of Terminal Bolts	Cell Weight Kg
		L	W	Ht			
KGL 12 P	12	46	85	167	M10	2	1.00
KGL 20 P	20	46	85	237	M10	2	1.50
KGL 25 P	25	46	85	237	M10	2	1.50
KGL 35 P	35	46	85	237	M10	2	1.60
KGL 45 P	45	85	85	237	M10	2	2.70
KGL 50 P	50	85	85	237	M10	2	2.80
KGL 60 P	60	85	85	237	M10	2	3.00
KGL 70 P	70	53	134	364	M8	2	4.90
KGL 80 P	80	53	134	364	M8	2	5.00
KGL 100 P	100	69	134	364	M8	2	6.20
KGL 120 P	120	69	134	364	M8	2	6.50
KGL 135 P	135	70	164	364	M8	2	7.70
KGL 155 P	155	70	164	364	M8	2	7.80
KGL 175 P	175	108	164	364	M8	2	10.60
KGL 205 P	205	108	164	364	M8	2	10.90
KGL 225 P	225	108	164	364	M8	2	11.20
KGL 245 P	245	108	164	364	M8	2	11.60
KGL 275 P	275	108	164	364	M8	2	12.20
KGL 300 P	300	164	158	364	M10	2	16.30
KGL 330 P	330	164	158	364	M10	2	16.50
KGL 350 P	350	164	158	364	M10	2	17.00
KGL 375 P	375	164	158	364	M10	2	17.50
KGL 390 P	390	164	158	364	M10	2	18.00
KGL 420 P	420	164	158	364	M10	2	18.50
KGL 440 P	440	164	158	364	M10	2	18.90
KGL 500 P	500	176	246	382	M10	4	27.30
KGL 555 P	555	176	246	382	M10	4	28.30
KGL 585 P	585	176	246	382	M10	4	28.70
KGL 610 P	610	176	246	382	M10	4	29.30
KGL 645 P	645	176	246	382	M10	4	29.80
KGL 665 P	665	176	368	382	M10	6	40.70
KGL 705 P	705	176	368	382	M10	6	41.40
KGL 750 P	750	176	368	382	M10	6	41.90
KGL 795 P	795	176	368	382	M10	6	42.60
KGL 835 P	835	176	368	382	M10	6	43.10
KGL 890 P	890	176	448	382	M10	8	49.20
KGL 990 P	990	176	448	382	M10	8	53.70
KGL 1110 P	1100	176	448	382	M10	8	56.00
KGL 1260 P	1260	176	558	382	M10	10	64.30
KGL 1320 P	1320	176	558	382	M10	10	66.80
KGL 1390 P	1390	176	558	382	M10	10	68.90
KGL 1460 P	1460	176	558	382	M10	10	70.50
KGL 1570 P	1570	176	558	382	M10	10	71.60



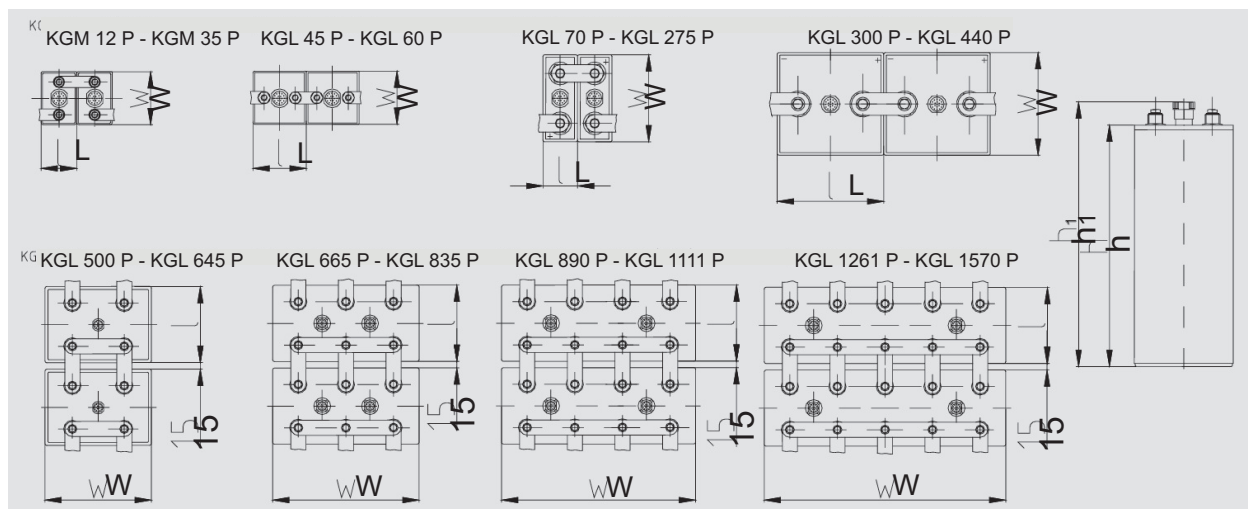






### Cell Type KGM---P in Plastic Case single cell - Medium Discharge Rate - Specification

Cell Type	Nom. Capacity C3 (Ah.) 1.00V Final Discharge Voltage / cell	Dimension Single Cell (mm)			Terminal Bolt Diameter	Number of Terminal Bolts	Cell Weight Kg.
		L	W	Ht			
KGM 11 P	11	46	85	167	M10	2	1.0
KGM 18 P	18	46	85	237	M10	2	1.5
KGM 24 P	24	46	85	237	M10	2	1.6
KGM 30 P	30	46	85	237	M10	2	1.7
KGM 40 P	40	85	85	237	M10	2	2.8
KGM 48 P	48	85	85	237	M10	2	2.8
KGM 55 P	55	85	85	237	M10	2	3.0
KGM 65 P	65	53	134	364	M8	2	4.9
KGM 75 P	75	53	134	364	M8	2	5.0
KGM 90 P	90	69	134	364	M8	2	6.2
KGM 110 P	110	69	134	364	M8	2	6.5
KGM 125 P	125	70	164	364	M8	2	7.7
KGM 140 P	140	70	164	364	M8	2	7.8
KGM 160 P	160	108	164	364	M8	2	10.6
KGM 185 P	185	108	164	364	M8	2	10.9
KGM 205 P	205	108	164	364	M8	2	11.2
KGM 225 P	225	108	164	364	M8	2	11.6
KGM 250 P	250	108	164	364	M8	2	12.2
KGM 270 P	270	164	158	364	M10	2	16.3
KGM 300 P	300	164	158	364	M10	2	16.5
KGM 320 P	320	164	158	364	M10	2	17.0
KGM 340 P	340	164	158	364	M10	2	17.5
KGM 355 P	355	164	158	364	M10	2	18.0
KGM 380 P	380	164	158	364	M10	2	18.5
KGM 400 P	400	164	158	364	M10	2	18.9
KGM 450 P	450	176	246	382	M10	4	27.3
KGM 470 P	470	176	246	382	M10	4	27.8
KGM 500 P	500	176	246	382	M10	4	28.3
KGM 520 P	520	176	246	382	M10	4	28.9
KGM 550 P	550	176	246	382	M10	4	29.3
KGM 570 P	570	176	246	382	M10	4	29.7
KGM 600 P	600	176	368	382	M10	6	40.7
KGM 630 P	630	176	368	382	M10	6	41.2
KGM 675 P	675	176	368	382	M10	6	41.9
KGM 690 P	690	176	368	382	M10	6	42.3
KGM 750 P	750	176	368	382	M10	6	43.1
KGM 770 P	770	176	368	382	M10	6	45.4
KGM 800 P	800	176	448	382	M10	8	49.1
KGM 850 P	850	176	448	382	M10	8	51.4
KGM 950 P	950	176	448	382	M10	8	53.7
KGM 1000 P	1000	176	448	382	M10	8	56.0
KGM 1030 P	1030	176	448	382	M10	8	58.9
KGM 1130 P	1130	176	448	382	M10	8	61.9
KGM 1250 P	1250	176	558	382	M10	10	68.9
KGM 1350 P	1350	176	558	382	M10	10	68.9









## SINGLE CELL CONSTRUCTION

Low pressure flame arresting vent

Safety terminal -  
Redundant leak protection minimizes  
carbonate formation

Electrode edge -  
Connected to terminal by screwing or  
welding providing high mechanical stability

Electrode frame -  
Consisting of electrode edge and side  
bars. Seals the plates and works as a  
current collector

Horizontal pockets -  
Formed by perforated steel strips  
containing the active material

Felt separator -  
Special felt separator insulates the  
plates and improves the internal  
recombination



## SEC Industrial Battery Co. range of products

<p>CELLYTE 2CMT/G Modular Steel Rack</p>	<p>CELLYTE 2TLAM/G Tubular Steel Rack</p>	<p>CELLYTE 2CMT/G, CELLYTE 2TLAM/G with Catalyst</p>	
<p>CELLYTE 12PLF &amp; 12PLT Range</p>	<p>CELLYTE 12FTA/G Range</p>	<p>CELLYTE 6-12TUA Range</p>	<p>CELLYTE 6-12TSG Range</p>
<p>CELLYTE 6-12TLA Range</p>	<p>CELLYTE 6-12TLG Range</p>	<p>MICROLYTE +Plus Range</p>	<p>MICROLYTE Red Top Range</p>
<p>CELLYTE 2ETG OPzV Range Tubular Steel Rack</p>	<p>SEC Tubular OPzS Range</p>	<p>Nickel Cadmium Range Pocket Plate flooded and Valve Regulated</p>	<p>Typical VRLA catalyst</p>

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