



**ULTIMATE  
STORAGE  
ENERGY**  
WHEN NEEDED



## Series:

- ▶ **Pure Lead Carbon High Endurance**  
PLH+C series
- ▶ **Lead Carbon**  
LRC series
- ▶ **Lead Carbon**  
LC series
- ▶ **Solar**  
OPzV series
- ▶ **AGM Gel**  
LPGS





[www.leoch.eu](http://www.leoch.eu)



**LEOCH EUROPE S.A.**, a subsidiary of LEOCH International Holdings Pte Ltd, was established in 2015 aiming to expand the globally renowned **LEOCH brand lead acid and lithium batteries in Europe, Middle East and Africa** by working closely with major OE manufactures, distributors and service providers as well as B2B customers who use our batteries.

LEOCH retains ten (10) regional manufacturing plants located in **PRC, Malaysia, Sri Lanka, India and Vietnam**, producing mainly reserve power batteries, SLI batteries and motive power batteries with an annual production capacity of over 20GVAh / year.

**Manufacturing Plants (10)**

- China Zhaoqing
- China Jiangsu
- China Anhui (3)
- Sri Lanka
- Malaysia (2)
- India
- Vietnam

**Subsidiaries / Sales Offices (9)**

- EMEA region (9)**
- Athens, Greece
  - Leicestershire, UK
  - Paris, France
  - Paderborn, Germany
  - Milan, Italy
  - Valencia, Spain
  - Ankara, Turkey
  - Johannesburg, S. Africa
  - Stockholm, Sweden

**APAC region (5)**

- Shenzhen, China
- Singapore
- Bangalore, India
- Sydney, Australia
- Bangkok, Thailand

**Los Angeles, USA**

● Subsidiaries / Sales Offices
🏭 Manufacturing Plants
🚛 Warehouses

**Your energy partner...**

<b>1999</b>	<b>14</b>	<b>10</b>	<b>105</b>	<b>12.000</b>	<b>20</b>	<b>1.5b</b>
Company Establishment	Subsidiaries and Sales Offices Worldwide	Manufacturing Plants	Production Lines	Employees Worldwide	GVAH Production Capacity per Year	US \$ Annual Sales

**...covering your needs for Renewable Energy Storage**

We manufacture a wide range of Premium Lead Acid and Lithium-Ion\* batteries to cover any renewable energy requirement. Aiming to deliver a robust product portfolio that will cover your requirements in the long term, we target to offer unprecedented value to your needs. Our offered solutions offer exceptional endurance during cyclic usage, long-life, high energy density, ease of installation and hassle-free operation for any type of renewable energy application.

\*Lithium Ion Products are available on demand, for more information please contact your nearest Leoch Head office.





# Pure Lead Carbon High Endurance PLH+C series



**-40°C – +65°C**  
TEMPERATURE RANGE

**Up to 24 months at 25°C**  
SHELF LIFE

**5 Years**  
WARRANTY

**2800 cycles**  
NUMBER OF CYCLES AT 40% DOD

LEOCH Pure Lead Carbon batteries, PLH+C series, are Pure Lead Carbon AGM Valve-Regulated Lead-Acid batteries that have been optimized for renewable energy applications. Engineered using the mixture of Pure Lead and Carbon technologies, they offer the best of both. PLH+C batteries offer extremely high cyclic performance in tandem with very long design life and come in 12V front terminal format for optimal space utilization.

## GENERAL FEATURES

**82 Pb Lead**  
LEAD TECHNOLOGY  
Pure Lead technology and design life of up to 20 years

**DEPTH OF DISCHARGE**  
2800 cycles at 40% DoD and increased PSoC performance

**SHIELDED DESIGN**  
Shielded design terminal caps reduces risk of short circuits and improves safety

**ABS CASE**  
ABS case UL94-HB (UL94-V0 Optional) is used for increased container strength

**SAFETY**  
Unique anti-explosion one-way vent valve design to minimize water loss & increase safety

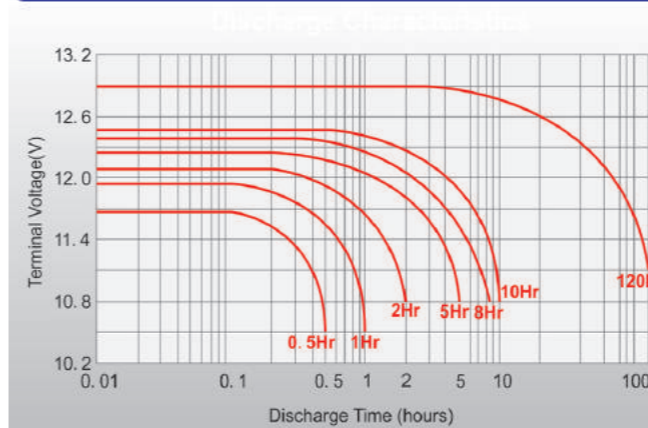
**LONG SERVICE LIFE**  
Thin plates using a special pasting formula ensures long service life

## BATTERY SPECIFICATIONS

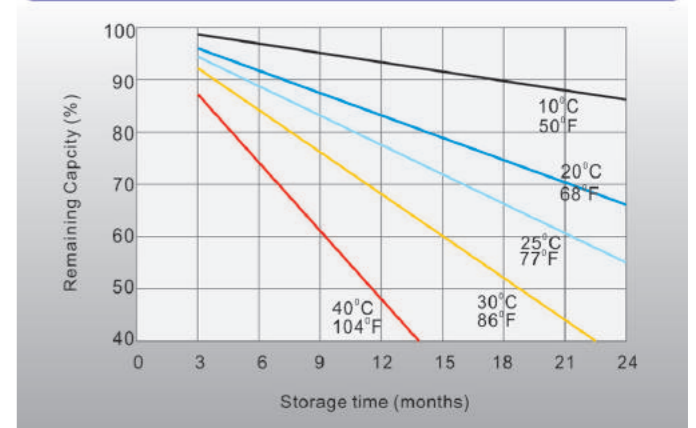
Model	Nominal Voltage (V)	Rated Capacity 10Hr @ 1.80V/cell (AH)	Rated Capacity 100Hr @ 1.80V/cell (AH)	Approx. Dimensions								Approx. Weight		Terminal Type
				Length		Width		Height		Total Height		kg	lbs	
				mm	in.	mm	in.	mm	in.	mm	in.			
PLH+C 40FT	12	38	46	298.70	11.76	97.00	3.82	184.00	7.24	184.00	7.24	12.50	27.56	M6
PLH+C 62FT	12	62	72	298.70	11.76	97.00	3.82	267.00	10.51	267.00	10.51	19.50	42.99	M6
PLH+C 90FT	12	90	104	405.40	15.96	108.00	4.25	287.00	11.30	287.00	11.30	28.70	63.27	M6
PLH+C 100FT	12	100	115	405.40	15.96	108.00	4.25	287.00	11.30	287.00	11.30	30.80	67.90	M6
PLH+C 100	12	100	116	341.50	13.44	175.00	6.89	213.00	8.39	215.00	8.46	31.20	68.78	M8
PLH+C 110FT	12	110	127	559.00	22.01	125.00	4.92	227.00	8.94	227.00	8.94	36.50	80.47	M6
PLH+C 150FT	12	150	174	559.00	22.01	125.00	4.92	277.00	10.91	277.00	10.91	48.00	105.82	M6
PLH+C 170FT	12	170	198	559.00	22.01	125.00	4.92	320.00	12.60	320.00	12.60	54.20	119.49	M6
PLH+C 190FT	12	190	220	559.00	22.01	125.00	4.92	320.00	12.60	320.00	12.60	57.60	126.98	M6
PLH+C 210FT	12	210	240	559.00	22.01	125.00	4.92	328.00	12.91	328.00	12.91	60.50	133.38	M6

## PERFORMANCE CHARACTERISTICS

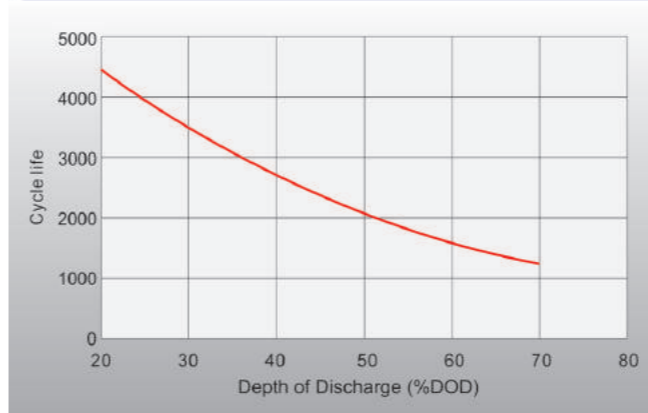
### Discharge Characteristics



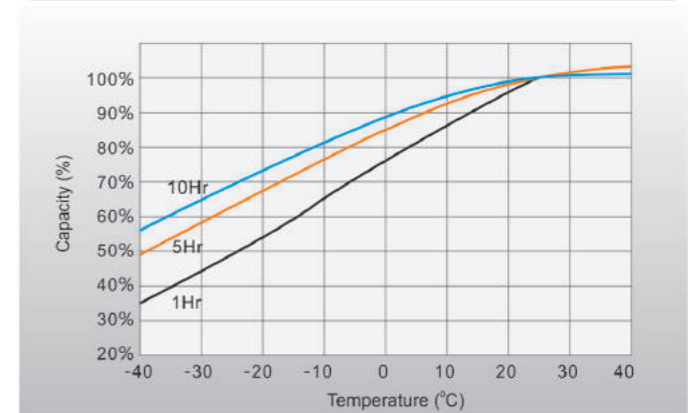
### Self-discharge Characteristics



### Cycle Life vs. Depth of Discharge



### Temperature Effect in Relation to Battery Capacity





# Lead Carbon LRC series



- 20°C – +55°C**  
TEMPERATURE RANGE
- ≤3.5% per month at 25°C**  
SELF-DISCHARGE
- 3 Years\***  
WARRANTY
- 3200-4000 cycles\***  
NUMBER OF CYCLES AT 60% DOD

\* depending on the application and the actual model

LEOCH Lead Reinforced Carbon batteries, LRC series, are reinforced Carbon AGM Valve-Regulated Lead-Acid batteries that have been optimized for renewable energy applications. Engineered using reinforced Lead Carbon technology that reduces shedding of the active material from the negative plates, LRC batteries offer extremely high cyclic performance. LRC batteries come in 2V cells format but also 12V front terminal format to cover increased space utilization requirements.

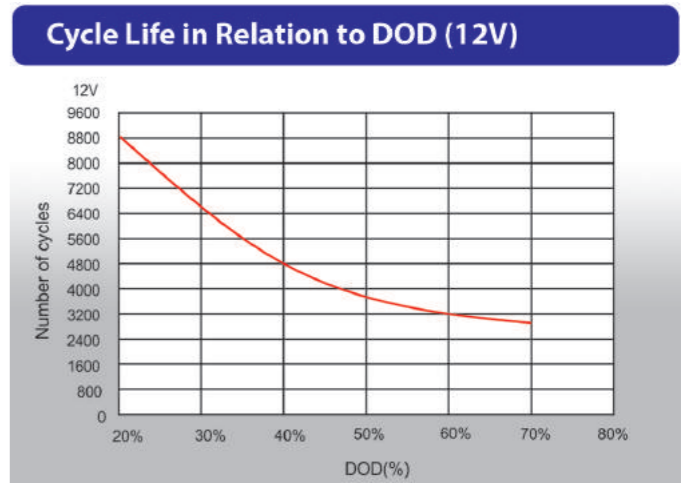
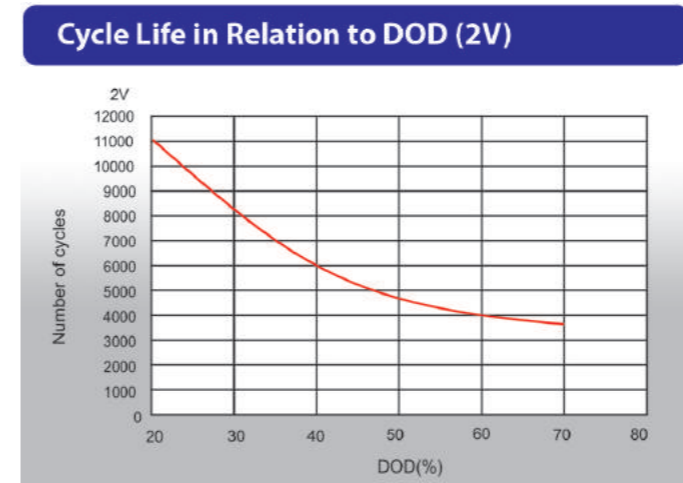
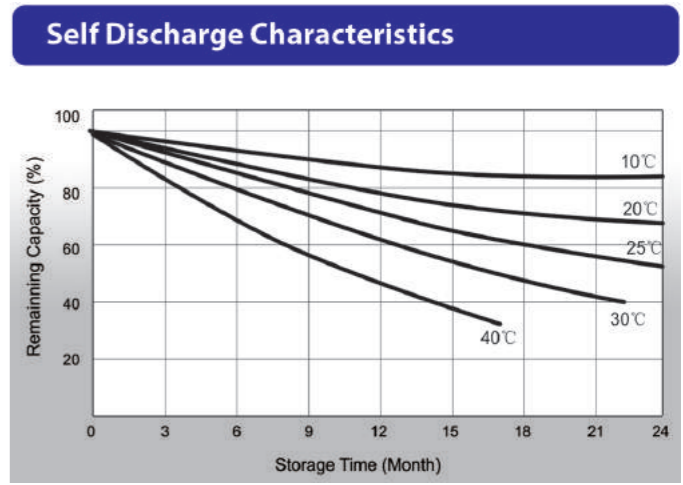
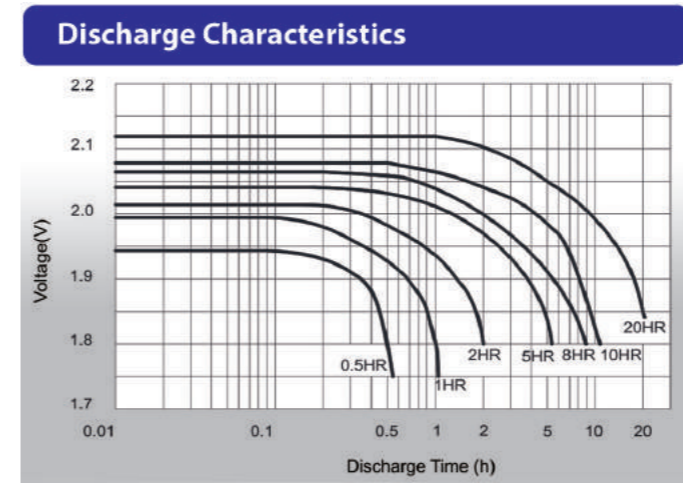
## GENERAL FEATURES

- EUROBAT CLASSIFIED**  
Long Life design (≥12 years) classified according to Eurobat for 12V models and Very Long Life design (≥15 years) classified according to Eurobat for 2V models
- MODULAR DESIGN**  
Modular design terminal caps reduces risk of short circuits and improves safety
- DEPTH OF DISCHARGE**  
Super carbon technology for increased cyclic performance (≥4000 cycles at 60%DOD) for 2V cells and (≥3200 cycles at 60%DOD) for 12V blocks
- LONG SERVICE LIFE**  
Thick plates using a special pasting formula ensures long service life
- SAFETY**  
Unique anti-explosion one-way vent valve design to minimize water loss & increase safety
- ABS CASE**  
ABS case UL94-HB (UL94-V0 optional) is used for increased container strength

## BATTERY SPECIFICATIONS

Model	Nominal Voltage (V)	Rated Capacity 10Hr @1.80V /cell (AH)	Rated Capacity 100Hr @1.80V /cell (AH)	Approx. Dimensions								Approx. Weight		Terminal Type
				Length		Width		Height		Total Height		kg	lbs	
				mm	in.	mm	in.	mm	in.	mm	in.			
LRCF12-140	12	143	157	550.00	21.65	125.00	4.92	315.00	12.40	315.00	12.40	55.00	121.28	M8
LRCF12-170	12	174	191	560.00	22.05	126.00	4.96	320.00	12.60	320.00	12.60	62.00	136.71	M8
LRC2-300	2	321	360	158.00	6.22	181.00	7.13	350.00	13.78	365.00	14.37	24.50	54.02	M8
LRC2-400	2	428	480	191.00	7.52	181.00	7.13	350.00	13.78	365.00	14.37	31.00	68.36	M8
LRC2-500	2	536	600	225.00	8.86	181.00	7.13	350.00	13.78	365.00	14.37	37.50	82.69	M8
LRC2-600	2	643	720	303.00	11.93	181.00	7.13	350.00	13.78	365.00	14.37	47.50	104.74	M8
LRC2-800	2	857	960	370.00	14.57	181.00	7.13	350.00	13.78	365.00	14.37	60.60	133.62	M8
LRC2-1000	2	1071	1200	440.00	17.32	181.00	7.13	350.00	13.78	365.00	14.37	73.60	162.29	M8

## PERFORMANCE CHARACTERISTICS







# Lead Carbon LC series



**-20°C – +55°C**

TEMPERATURE RANGE

**≤4% per month at 25°C**

SELF-DISCHARGE

**1.5 - 3 Years\***

WARRANTY

**3000 cycles**

NUMBER OF CYCLES AT 60% DOD

\* depending on the application and the actual model

LEOCH Lead Carbon batteries, LC series, are Carbon AGM Valve-Regulated Lead-Acid batteries that have been optimized for renewable energy applications. Engineered using Lead Carbon technology that reduces shedding of the active material from the negative plates, LC batteries offer very high cyclic performance. LC batteries come in 2V cells format for horizontal as well as vertical installation to minimize space requirements.

## GENERAL FEATURES



LONG LIFE

Long Life design (≥12 years) classified according to Eurobat



SAFETY

Unique anti-explosion one-way vent valve design to minimize water loss & increase safety



DEPTH OF DISCHARGE

Super carbon technology for increased cyclic performance (≥3000 cycles at 60%DOD)



LONG SERVICE LIFE

Thick plates using a special pasting formula ensures long service life



MODULAR DESIGN

Modular design terminal caps reduces risk of short circuits and improves safety



ABS CASE

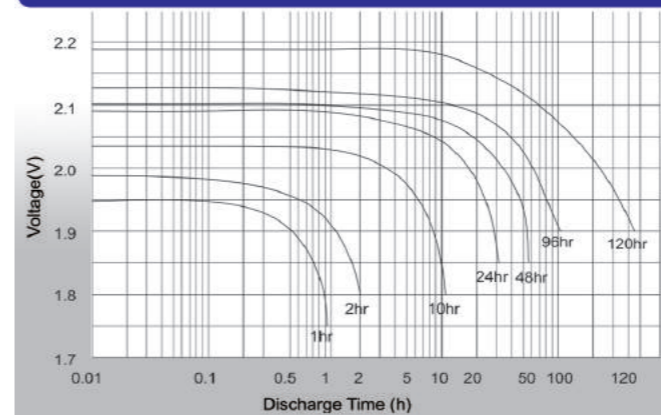
ABS case UL94-HB (UL94-V0 optional) is used for increased container strength

## BATTERY SPECIFICATIONS

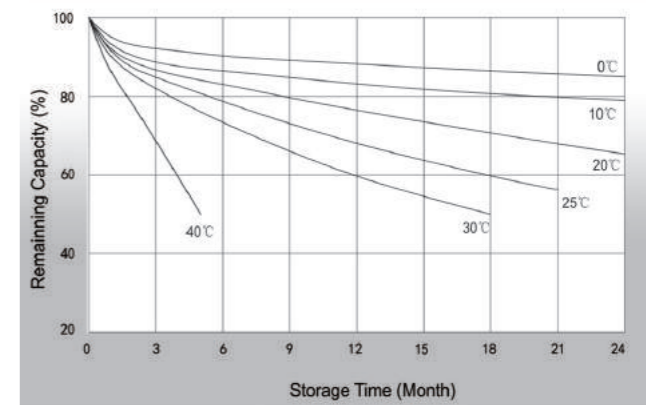
Model	Nominal Voltage (V)	Rated Capacity 10Hr @1.80V /cell (AH)	Rated Capacity 100Hr @1.80V /cell (AH)	Approx. Dimensions								Approx. Weight		Terminal Type
				Length		Width		Height		Total Height		kg	lbs	
				mm	in.	mm	in.	mm	in.	mm	in.			
LC2-200	2	200	224	90.00	3.54	181.00	7.13	350.00	13.78	365.00	14.37	13.60	29.99	M8
LC2-300	2	300	336	124.00	4.88	181.00	7.13	350.00	13.78	365.00	14.37	18.80	41.45	M8
LC2-400	2	400	448	158.00	6.22	181.00	7.13	350.00	13.78	365.00	14.37	24.80	54.68	M8
LC2-500	2	500	560	191.00	7.52	181.00	7.13	350.00	13.78	365.00	14.37	30.60	67.47	M8
LC2-600	2	600	672	225.00	8.86	181.00	7.13	350.00	13.78	365.00	14.37	36.60	80.70	M8
LC2-800	2	800	896	303.00	11.93	181.00	7.13	350.00	13.78	365.00	14.37	48.80	107.60	M8
LC2-1000	2	1000	1120	370.00	14.57	181.00	7.13	350.00	13.78	365.00	14.37	60.60	133.62	M8
LC2-1200	2	1200	1344	440.00	17.32	181.00	7.13	350.00	13.78	365.00	14.37	72.60	160.08	M8

## PERFORMANCE CHARACTERISTICS

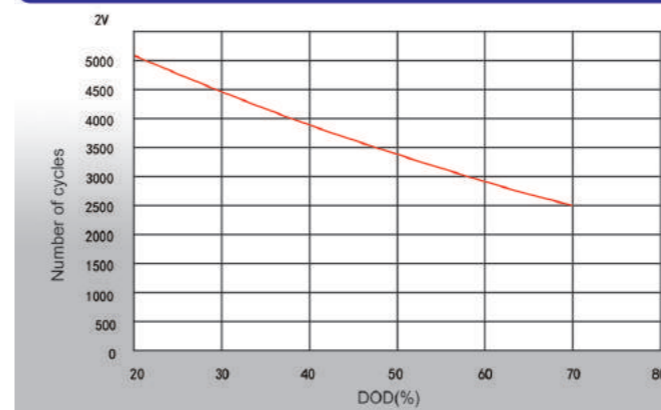
### Discharge Characteristics



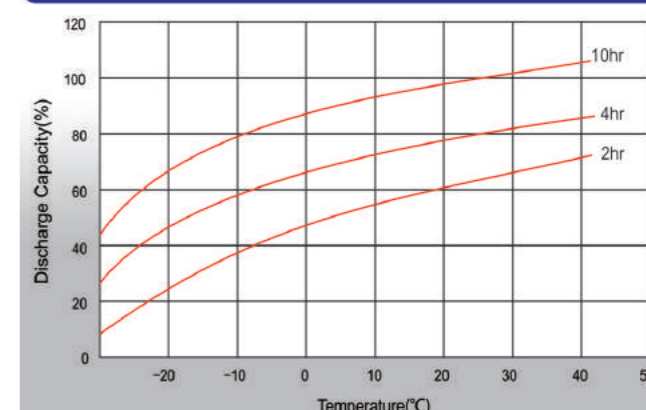
### Self Discharge Characteristics



### Cycle Life in Relation to DOD



### Temperature Effect in Relation to Battery Capacity





# Solar OPzV series



- TEMPERATURE RANGE**  
-20°C – +55°C
- SELF-DISCHARGE**  
≤3% per month at 25°C
- WARRANTY**  
1-5 Years\*
- NUMBER OF CYCLES AT 60% DOD**  
2000-2400 cycles\*

\* depending on the application and the actual model

LEOCH Solar Tubular Gel batteries, Solar OPzV series, are Gel Valve-Regulated Lead-Acid batteries using tubular plates that have been optimized for high cyclic renewable energy applications. Engineered for long-life cyclic applications, OPzV batteries offer up to 20-year life design with high cyclic abilities.

## GENERAL FEATURES

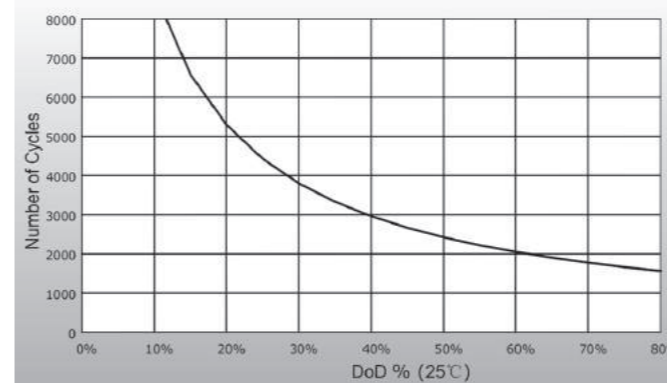
- DEPTH OF DISCHARGE**  
Ideal for renewable energy applications offering 2000 cycles (2V) and 2400 cycles (12V) at 60% DoD
- MAINTENANCE FREE**  
Complete maintenance free design throughout the battery's life (in accordance to the provided product and user's manual)
- DESIGN LIFE**  
12V: 16 years design life (20°C)  
2V: 20 years design life (20°C)
- SAFETY**  
Unique anti-explosion one-way vent valve design to minimize water loss & increase safety
- SPACE OPTIMIZATION**  
Horizontal installation for optimum space utilization especially in large installation
- ABS CASE**  
ABS case UL94-HB (UL94-V0 optional) is used for increased container strength

## BATTERY SPECIFICATIONS

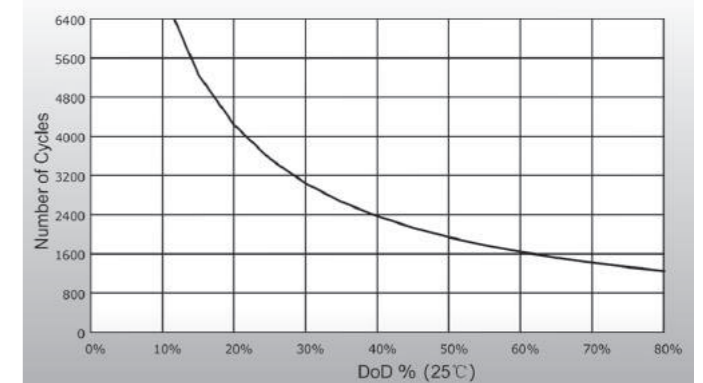
Model	Nominal Voltage (V)	Rated Capacity 10Hr @1.80V /cell (AH)	Rated Capacity 100Hr @1.80V /cell (AH)	Approx. Dimensions								Approx. Weight		Terminal Type
				Length		Width		Height		Total Height		kg	lbs	
				mm	in.	mm	in.	mm	in.	mm	in.			
40PzV200	2	200	260	103.00	4.06	206.00	8.11	355.00	13.98	390.00	15.35	18.80	41.50	M8
50PzV250	2	250	325	124.00	4.88	206.00	8.11	355.00	13.98	390.00	15.35	23.10	50.90	M8
60PzV300	2	300	390	145.00	5.71	206.00	8.11	355.00	13.98	390.00	15.35	27.10	59.80	M8
50PzV350	2	350	455	124.00	4.88	206.00	8.11	471.00	18.54	506.00	19.92	29.00	63.90	M8
60PzV420	2	420	546	145.00	5.71	206.00	8.11	471.00	18.54	506.00	19.92	34.50	76.10	M8
70PzV490	2	490	637	166.00	6.54	206.00	8.11	471.00	18.54	506.00	19.92	39.00	86.00	M8
60PzV600	2	600	780	145.00	5.71	206.00	8.11	646.00	25.43	681.00	26.81	46.00	101.40	M8
80PzV800	2	800	1040	191.00	7.52	210.00	8.27	646.00	25.43	681.00	26.81	65.10	143.50	M8
100PzV1000	2	1000	1300	233.00	9.17	210.00	8.27	646.00	25.43	681.00	26.81	78.50	173.10	M8
120PzV1200	2	1200	1560	275.00	10.83	210.00	8.27	646.00	25.43	681.00	26.81	93.00	205.10	M8
120PzV1500	2	1560	1950	275.00	10.83	210.00	8.27	796.00	31.34	831.00	32.72	115.00	253.60	M8
160PzV2000	2	2000	2600	399.00	15.71	214.00	8.27	772.00	30.39	807.00	31.77	155.00	341.80	M8
200PzV2500	2	2500	3250	487.00	19.17	212.00	8.35	772.00	30.39	807.00	31.77	196.00	432.20	M8
240PzV3000	2	3000	3900	576.00	22.68	212.00	8.35	772.00	30.39	807.00	31.77	232.00	511.60	M8
12V 3 OPzV100FT	12	100	120	551.00	21.70	110.00	4.33	287.00	11.30	287.00	11.30	39.70	87.50	M6
12V 3 OPzV120FT	12	120	144	551.00	21.70	110.00	4.33	287.00	11.30	287.00	11.30	42.30	93.30	M6
12V 4 OPzV150FT	12	150	180	549.50	21.60	124.50	4.90	315.00	12.40	315.00	12.40	51.70	114.00	M8
12V20PzV40	12	40	48	260.00	10.20	168.00	6.61	208.00	8.20	230.00	9.10	19.00	41.90	T14
12V20PzV45	12	45	54	260.00	10.20	168.00	6.61	208.00	8.20	214.00	8.40	19.50	43.00	T14
12V30PzV60	12	60	72	260.00	10.20	168.00	6.61	208.00	8.20	229.00	9.00	23.70	52.30	T14
12V40PzV80	12	80	96	330.00	13.00	173.00	6.81	212.00	8.30	218.00	8.60	30.80	67.90	M8
12V50PzV100	12	100	120	408.00	16.10	177.00	6.97	225.00	8.90	225.00	8.90	38.30	84.50	M8
12V60PzV120	12	120	144	483.00	19.00	170.00	6.69	238.50	9.40	238.50	9.40	45.70	100.80	M8
12V70PzV140	12	140	168	532.00	20.90	207.00	8.15	214.00	8.40	220.00	8.70	54.00	119.10	M8
12V80PzV160	12	160	192	532.00	20.90	207.00	8.15	214.00	8.40	220.00	8.70	59.30	130.80	M8
12V90PzV180	12	180	216	522.00	20.60	240.00	9.45	218.00	8.60	224.00	8.80	67.40	148.60	M8
12V100PzV200	12	200	240	522.00	20.60	268.00	10.55	220.00	8.70	226.00	8.90	75.90	167.40	M8

## PERFORMANCE CHARACTERISTICS

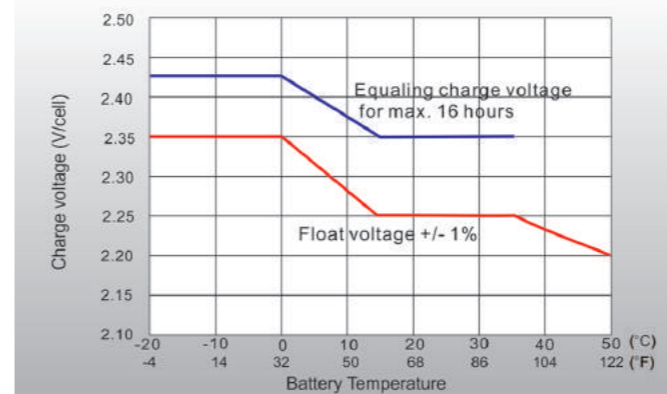
Cycle Life in Relation to DOD (2V)



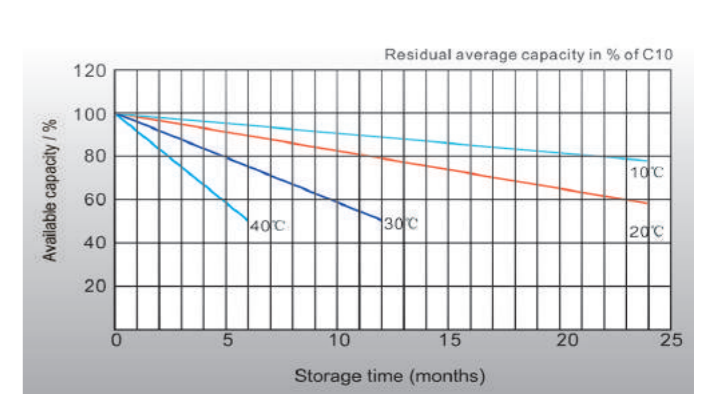
Cycle Life in Relation to DOD (12V)



Charge Voltage vs Ambient Temperature



General Relation of Capacity vs Storage Time







# Hybrid GEL LPGS series



- 15°C – +50°C**  
TEMPERATURE RANGE
- up to 9 months at 25°C**  
SHELF LIFE
- 1-3 Years\***  
WARRANTY
- 500 cycles\***  
NUMBER OF CYCLES AT 80% DOD

\* depending on the application and the actual model

LEOCH Hybrid GEL batteries, LPGS series, are Hybrid Gel Valve-Regulated Lead-Acid batteries that have been optimized for renewable energy applications. Engineered using hybrid gel technology with proper SiO<sub>2</sub> infusion technology (Gelled electrolyte) and AGM separator, LPGS batteries offer a balanced performance between GEL and AGM technologies for cyclic applications. LPGS batteries come in various capacities in 2V cells or 12V blocks, to cover any requirement.

## GENERAL FEATURES

- DEPTH OF DISCHARGE**: Increased cyclic performance offering more than 500 cycles at 80% DoD
- LONG SERVICE LIFE**: Thick plates using a special pasting formula ensures long service life
- PSoC ENDURANCE**: Increased PSoC endurance and performance compared to conventional AGM technology batteries
- SAFETY**: Unique anti-explosion one-way vent valve design to minimize water loss & increase safety
- CHARGE ENDURANCE**: Enhanced over charge and over discharge endurance
- ABS CASE**: ABS case UL94-HB (UL94-V0 optional) is used for increased container strength

## BATTERY SPECIFICATIONS

Model	Nominal Voltage (V)	Rated Capacity 10Hr @ 1.80V/cell (AH)	Approx. Dimensions								Approx. Weight		Terminal Type
			Length		Width		Height		Total Height		kg	lbs	
			mm	in.	mm	in.	mm	in.	mm	in.			
LPGS12-28	12	25.9	166.00	6.50	175.00	6.90	125.00	4.90	125.00	4.90	8.60	19.00	M5
LPGS12-33	12	30.6	195.00	7.70	130.00	5.10	164.00	6.50	167.00	6.60	10.50	23.20	M6
LPGS12-38	12	38	197.00	7.80	165.00	6.50	170.00	6.70	170.00	6.70	13.30	29.30	M6
LPGS12-65	12	65	325.00	12.80	167.00	6.60	174.00	6.90	174.00	6.90	21.40	47.20	M6
LPGS12-75	12	75	260.00	10.20	168.00	6.60	208.00	8.20	214.00	8.40	22.50	49.60	M6
LPGS12-80	12	80	260.00	10.20	168.00	6.60	208.00	8.20	214.00	8.40	24.00	52.90	M6
LPGS12-90	12	90	306.00	12.00	168.00	6.60	208.00	8.20	214.00	8.40	27.00	59.50	M6
LPGS12-100	12	100	330.00	13.00	173.00	6.80	212.00	8.30	218.00	8.60	30.80	67.90	M8
LPGS12-120	12	120	408.00	16.10	177.00	7.00	225.00	8.90	225.00	8.90	34.30	75.60	M8
LPGS12-140	12	140	483.00	19.00	170.00	6.70	238.50	9.40	238.50	9.40	41.80	92.20	M8
LPGS12-150	12	150	483.00	19.00	170.00	6.70	238.50	9.40	238.50	9.40	43.60	96.10	M8
LPGS12-180	12	180	532.00	20.90	207.00	8.10	214.00	8.40	220.00	8.70	54.00	119.10	M8
LPGS12-200	12	200	522.00	20.60	240.00	9.40	218.00	8.60	224.00	8.80	60.30	133.00	M8
LPGS12-250	12	250	522.00	20.60	268.00	10.60	220.00	8.70	226.00	8.90	73.10	161.20	M8
LPGS2-100	2	100	170.00	6.70	72.00	2.80	205.00	8.10	214.00	8.40	5.80	12.80	M8
LPGS2-200	2	200	170.00	6.70	110.00	4.30	328.00	12.90	337.00	13.30	13.80	30.40	M8
LPGS2-300	2	300	170.00	6.70	150.00	5.90	330.00	13.00	339.00	13.30	18.90	41.70	M8
LPGS2-400	2	400	210.00	8.30	175.00	6.90	330.00	13.00	339.00	13.30	25.70	56.70	M8
LPGS2-500	2	500	240.00	9.40	175.00	6.90	327.50	12.90	338.00	13.30	30.20	66.60	M8
LPGS2-600	2	600	300.00	11.80	175.00	6.90	330.00	13.00	340.00	13.40	36.80	81.10	M8
LPGS2-800	2	800	410.00	16.10	175.00	6.90	330.00	13.00	340.00	13.40	50.70	111.80	M8
LPGS2-1000	2	1000	475.00	18.70	175.00	6.90	328.00	12.90	338.00	13.30	60.40	133.20	M8
LPGS2-1500	2	1500	403.00	15.90	354.00	13.90	339.00	13.30	349.00	13.70	96.60	213.00	M8

## PERFORMANCE CHARACTERISTICS

- Discharge Characteristics**: Graph showing Terminal Voltage (V) vs Discharge Time (min/H) at 25°C for various discharge rates (2C, 1C, 0.6C, 0.4C, 0.2C, 0.1C, 0.05C). C=C10.
- Floating Charging Characteristics**: Graph showing Charge Volume % vs Charging Time (hours) at 25°C for 0.1CA-2.25V/cell. Shows charging current and voltage curves for after 50% and 100% discharge (C=C10).
- Cycle Life in Relation to Depth of Discharge**: Graph showing Extracted capacity in % vs Number of Cycles (400 to 4000) according to IEC 896-2 (25°C / 77°F).
- General Relation of Capacity vs Storage Time**: Graph showing Available capacity % vs Storage time in month (0 to 25) at 10°C, 20°C, 30°C, and 40°C. Residual average capacity in % of C20.

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