

## Deep cycle

# GEL Batteries - 12 VDC

Our GEL batteries are the most reliable and powerful batteries available on the market. You can choose between two types: a 12 VDC battery, suitable for battery banks up to approximately 700 Ah (12 or 24 VDC) and individual 2 VDC cells, which are suitable for building into one solid battery bank 2000 Ah at 12, 24 or 48 VDC.



### The difference between GEL and AGM batteries

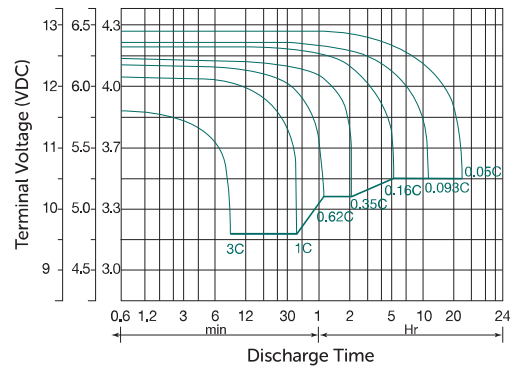
- In GEL batteries the electrolyte is absorbed by a sort of GEL rendering the battery stronger and more robust
- GEL provide better heat dispersion (conduction) than Absorbed Glass Mat (AGM)
- GEL batteries have a longer life span (greater charge-/discharge cycle)
- 12 VDC GEL batteries are the best option for frequently used electrical systems

### The difference between 2 VDC GEL cells and 12 VDC GEL batteries

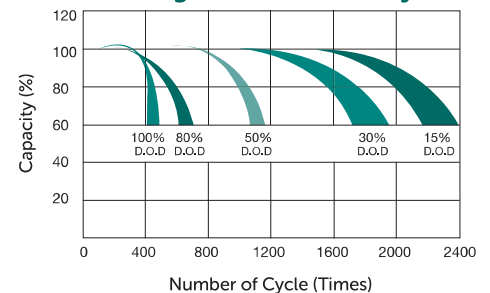
- 2 VDC cells are designed for daily deep charge-/discharge cycles
- 2 VDC cells are used in various industrial applications such as material transportation
- 2 VDC cells can withstand high peak loads (from electrical motors for example) and high charge currents
- 2 VDC cells have tubular plates instead of flat plates resulting in very high power density
- 2 VDC cells go up to 2000 Ah
- No voltage drops or unequal charging when connected in series / parallel
- The cells are delivered with industrial "pre-fab" cables

For 2 VDC cells specifications, see page 70

### Discharge curves



### Discharge effect on battery life



### Battery terminals (optional)



Adapter set M6 < 100 Ah Art. Nr. 40290097  
 Adapter set M8 > 100 Ah Art. Nr. 40290099

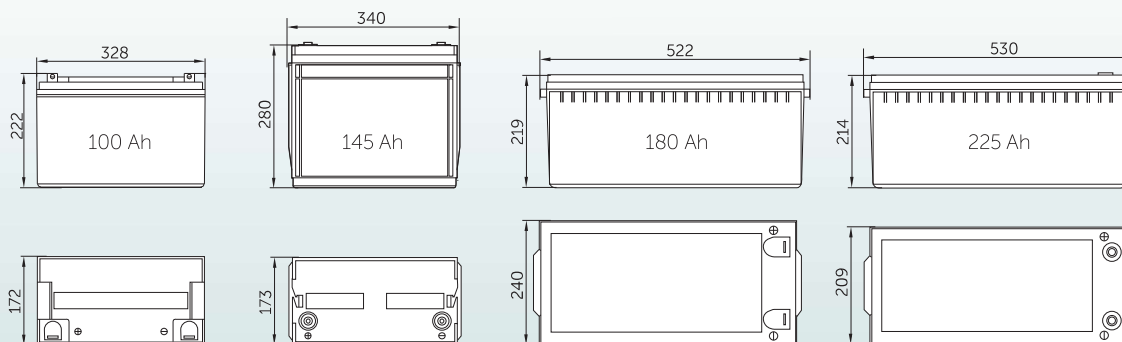


## GEL Power Series

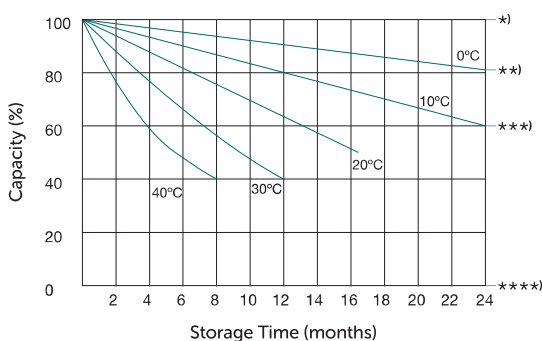


	12 VDC   100 Ah	12 VDC   145 Ah	12 VDC   180 Ah	12 VDC   225 Ah
Article Number	40290070	40290071	40290072	40290073
<b>TECHNICAL SPECIFICATIONS</b>				
Nominal capacity (C20)	100 Ah	145 Ah	180 Ah	225 Ah
Nominal voltage	12 VDC	12 VDC	12 VDC	12 VDC
Type	Deep discharge GEL battery with potential 12 year life span on float voltage. Superior design for frequent discharge cycles under extreme temperatures Strong grid construction ensures increased reliability with frequent deep discharge More than 400 cycles possible with complete discharge (100 % DOD). Extra durable cyclic performance and high recovery efficiency Ideal for marine, mobile and solar energy systems as well as intensively used emergency / back up energy systems			
Weight $\pm 10\%$	30 kg / 66.1 lb	44 kg / 97 lb	53 kg / 116.8 lb	65 kg / 143.3 lb
Dimensions (W x D x H) in mm (excl. poles)	328 x 172 x 222	340 x 173 x 280	530 x 209 x 214	522 x 240 x 219
Terminal type	M8 stainless steel	M8 stainless steel	M8 stainless steel	M8 stainless steel
Number of cells	6	6	6	6
<b>CHARGE / DISCHARGE PARAMETERS</b>				
Constant charge voltage (IU, float)	13.60 - 13.80 VDC at 25°C	13.60 - 13.80 VDC at 25°C	13.60 - 13.80 VDC at 25°C	13.60 - 13.80 VDC at 25°C
Cyclic charge voltage (IIU, absorption)	14.25 - 14.60 VDC at 25°C	14.25 - 14.60 VDC at 25°C	14.25 - 14.60 VDC at 25°C	14.25 - 14.60 VDC at 25°C
Maximum charge current	20 A	29 A	36 A	45 A
Temperature ratio	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C
Discharge voltage	1.75 VDC at (A) $\leq 0.2^\circ\text{C}$ 1.70 VDC at $0.2^\circ\text{C}$ (A) $\leq 1.0^\circ\text{C}$	1.75 VDC at (A) $\leq 0.2^\circ\text{C}$ 1.70 VDC at $0.2^\circ\text{C}$ (A) $\leq 1.0^\circ\text{C}$	1.75 VDC at (A) $\leq 0.2^\circ\text{C}$ 1.70 VDC at $0.2^\circ\text{C}$ (A) $\leq 1.0^\circ\text{C}$	1.75 VDC at (A) $\leq 0.2^\circ\text{C}$ 1.70 VDC at $0.2^\circ\text{C}$ (A) $\leq 1.0^\circ\text{C}$
Full discharge (100 % DOD)	1.65 VDC at (A) $\geq 1.0^\circ\text{C}$	1.65 VDC at (A) $\geq 1.0^\circ\text{C}$	1.65 VDC at (A) $\geq 1.0^\circ\text{C}$	1.65 VDC at (A) $\geq 1.0^\circ\text{C}$
<b>NOMINAL CAPACITY AT 25°C</b>				
20 hours discharge	100 Ah	145 Ah	180 Ah	225 Ah
10 hours discharge	95 Ah	136 Ah	169 Ah	209 Ah
5 hours discharge	84 Ah	117 Ah	146 Ah	181 Ah
Peukeurt Coefficient	$1.21 < P < 1.24$	$1.21 < P < 1.24$	$1.21 < P < 1.24$	$1.21 < P < 1.24$
Usage at 25 A discharge	165 min.	261 min.	341 min.	450 min.
Self discharge	Less than 3 % per month at 25°C			
Storage time	GEL batteries can be stored for up to 6 months at 25°C, recommended to charge before use			
<b>BATTERY PARAMETERS</b>				
Inrush Current at 25°C (5 seconds)	1000 A	1450 A	1800 A	2250 A
Cyclic life at 80 % discharge	600	600	600	600
Internal resistance (approx.)	75 m $\Omega$	5 m $\Omega$	6 m $\Omega$	4 m $\Omega$

## Dimensions



## Storage effect



- \*) Supplementary charge required  
(Carry out supplementary charge before use if 100% capacity is required)
- \*\*) Supplementary charge required before use.  
This supplementary charge will help to recover the capacity and should be made as early as possible
- \*\*\*) Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this state is reached
- \*\*\*\*) Supplementary charge and storage guidelines



# Multi cycle 2 Volt Cells

**Whilst vertical installation is recommended, 2 VDC GEL cells can be installed up to 30 degree angle. Horizontal installation can be ordered on request. Cables to connect the individual 2 VDC cells together are supplied as standard.**

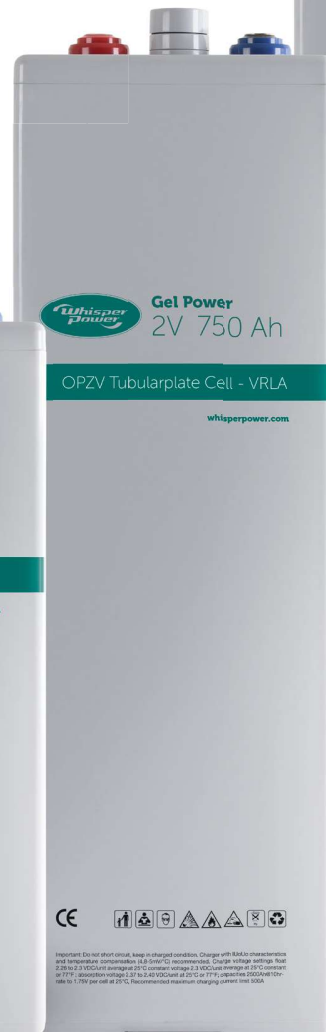
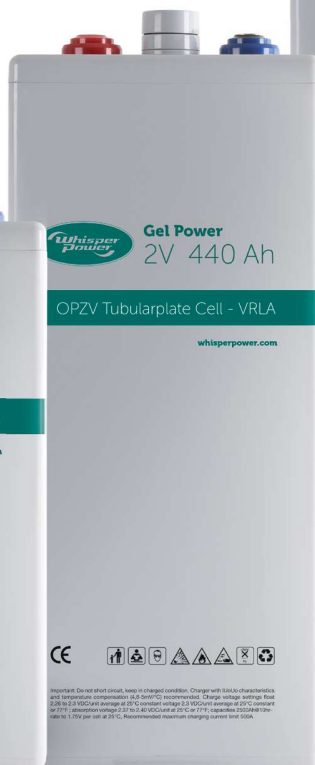
## Recommended Use

- For both 2 VDC and 12 VDC GEL batteries:
- Charge according to three step process (IUoUo) (see page 6 - 15)
- Keep battery connected to the charger even when not in use
- Use the temperature sensor to monitor the temperature of the battery
- Use alternator only on 'float voltage'
- Fit with ACR regulator as alternator will charge the battery faster and to 100%

## GEL batteries - 2 VDC Cells - forklift truck / traction quality

- Designed to last for over 10 years
- Suitable for high charge current (50 % of nominal capacity)
- Ideal battery for large battery banks (600 to 8000 Ah)
- Best option for intensively used heavy duty inverter(s)
- Suitable for a large number of charge cycles (1200 to 3000 depending on discharge level)
- 7 year warranty (restricted to cycles)

▶ Ready to use, link cables



Important: Do not short circuit, keep in charged condition. Charge with 80A in characteristics and temperature compensation (0.8-0.9mV/°C) recommended. Charge voltage settings float 2.28 to 2.3 VDC/Cell average at 25°C constant voltage 2.3 VDC/Cell average at 25°C constant at 77°F absorption voltage 2.37 to 2.40 VDC/Cell at 25°C or 77°F. Capabilities 2500mAh/20hrs @ 1.75V per cell at 25°C. Recommended maximum charging current limit 500A.



Important: Do not short circuit, keep in charged condition. Charge with 80A in characteristics and temperature compensation (0.8-0.9mV/°C) recommended. Charge voltage settings float 2.28 to 2.3 VDC/Cell average at 25°C constant voltage 2.3 VDC/Cell average at 25°C constant at 77°F absorption voltage 2.37 to 2.40 VDC/Cell at 25°C or 77°F. Capabilities 2500mAh/20hrs @ 1.75V per cell at 25°C. Recommended maximum charging current limit 500A.



Important: Do not short circuit, keep in charged condition. Charge with 80A in characteristics and temperature compensation (0.8-0.9mV/°C) recommended. Charge voltage settings float 2.28 to 2.3 VDC/Cell average at 25°C constant voltage 2.3 VDC/Cell average at 25°C constant at 77°F absorption voltage 2.37 to 2.40 VDC/Cell at 25°C or 77°F. Capabilities 2500mAh/20hrs @ 1.75V per cell at 25°C. Recommended maximum charging current limit 500A.



Important: Do not short circuit, keep in charged condition. Charge with 80A in characteristics and temperature compensation (0.8-0.9mV/°C) recommended. Charge voltage settings float 2.28 to 2.3 VDC/Cell average at 25°C constant voltage 2.3 VDC/Cell average at 25°C constant at 77°F absorption voltage 2.37 to 2.40 VDC/Cell at 25°C or 77°F. Capabilities 2500mAh/20hrs @ 1.75V per cell at 25°C. Recommended maximum charging current limit 500A.

## GEL Power 2 VDC Series



	2 VDC 210 Ah	2 VDC 440 Ah	2 VDC 525 Ah	2 VDC 750 Ah	2 VDC GEL 1000 Ah	2 VDC 1250 Ah	2 VDC 1500 Ah	2 VDC 1650 Ah
Article Number	40290035	40290037	40290038	40290040 *)	40290041 *)	40290042 *)	40290043	40290044
<b>TECHNICAL SPECIFICATIONS</b>								
Nominal capacity (C10, cel 1.80 V, 20°C)	210 Ah	440 Ah	525 Ah	750 Ah	1000 Ah	1250 Ah	1500 Ah	1650 Ah
Nominal voltage	2 VDC	2 VDC	2 VDC	2 VDC	2 VDC	2 VDC	2 VDC	2 VDC
Type	WhisperPower OPzV valve regulated batteries are ideally suited for applications with extended deep charge / discharge cycles. They are fully maintenance free. WhisperPower GEL batteries are constructed using tubular plate technology, wherein the electrolyte is contained in the GEL. They are widely used in emergency / back-up power supplies, marine and mobile battery banks and UPS installations.							
Weight ± 10 %	18 kg	33 kg	39 kg	50 kg	68 kg	82 kg	97 kg	120 kg
Dimensions (W x D x H) in mm (excl. poles)	206 x 145 x 390	206 x 145 x 506	206 x 166 x 506	206 x 145 x 643	210 x 191 x 644	210 x 223 x 646	210 x 275 x 645	210 x 275 x 796
Terminal type	2 x M8	2 x M8	2 x M8	2 x M8	4 x M8	4 x M8	4 x M8	4 x M8
<b>CHARGE / DISCHARGE PARAMETERS</b>								
Bulk charge voltage (V/cel) at 20°C	2.42 VDC	2.42 VDC	2.42 VDC	2.42 VDC	2.42 VDC	2.42 VDC	2.42 VDC	2.42 VDC
Float voltage (V/cel) at 20°C	2.25 VDC	2.25 VDC	2.25 VDC	2.25 VDC	2.25 VDC	2.25 VDC	2.25 VDC	2.25 VDC
Initial charge current (A)	80 A	150 A	200 A	240 A	320 A	400 A	480 A	600 A
Temperature ratio	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C	-4 mVDC / cel / °C
Recommended discharge voltage for 10 hours discharge (V/cel)	1.80 VDC/cel	1.80 VDC/cel	1.80 VDC/cel	1.80 VDC/cel	1.80 VDC/cel	1.80 VDC/cel	1.80 VDC/cel	1.80 VDC/cel
Recommended discharge voltage for 1 hour discharge (V/cel)	1.65 VDC/cel	1.65 VDC/cel	1.65 VDC/cel	1.65 VDC/cel	1.65 VDC/cel	1.65 VDC/cel	1.65 VDC/cel	1.65 VDC/cel
<b>NOMINAL CAPACITY AT 20°C</b>	<b>UP TO 1.80 VDC/CE</b>	<b>UP TO 1.80 VDC/CE</b>	<b>UP TO 1.80 VDC/CE</b>	<b>UP TO 1.80 VDC/CE</b>	<b>UP TO 1.80 VDC/CE</b>	<b>UP TO 1.80 VDC/CE</b>	<b>UP TO 1.80 VDC/CE</b>	<b>UP TO 1.80 VDC/CE</b>
10 hours discharge	210 Ah	440 Ah	525 Ah	750 Ah	1000 Ah	1250 Ah	1500 Ah	1650 Ah
5 hours discharge	180 Ah	370 Ah	450 Ah	650 Ah	865 Ah	1085 Ah	1305 Ah	1355 Ah
1-hour discharge	88 Ah	184 Ah	220 Ah	314 Ah	489 Ah	570 Ah	629 Ah	647 Ah
Peukeurt Coefficient	1.21 < P < 1.23	1.21 < P < 1.23	1.21 < P < 1.23	1.21 < P < 1.23	1.21 < P < 1.23	1.21 < P < 1.23	1.21 < P < 1.23	1.21 < P < 1.23
Usage at 25 A discharge	8 h	15 h	18 h	24 h	32 h	40 h	48 h	60 h
Self discharge	Less than 3 % per month at 20°C							
Storage time	Opzv batteries can be stored for up to 6 months at 20°C, recommended to charge before use							
<b>BATTERY PARAMETERS</b>								
Cyclic life at 80 % discharge	1250	1250	1250	1250	1250	1250	1250	1250
Internal resistance (approx.)	0.60 mΩ	0.42 mΩ	0.38 mΩ	0.35 mΩ	0.29 mΩ	0.24 mΩ	0.22 mΩ	0.19 mΩ

\*) Stock items

ART. NR.	ARTICLE
40290101	Connection strip set GEL Power 2 VDC for 12 VDC / 750 Ah *)
40290103	Connection strip set GEL Power 2 VDC for 12 VDC / 1000 Ah *)
40290105	Connection strip set GEL Power 2 VDC for 12 VDC / 1250/1500/1650 Ah *)

\*) For 24 VDC configuration 2 connections sets are required

- 7 year warranty (pro rata)
- 3500 cycles at 50 % discharge
- Ah rating based on C10



### Dimensions 2 Volt Cells

