GNB®
INDUSTRIAL POWER
A Division of Exide Technologies

Industrial Batteries / Network Power

Classic Solar

*»**Powerful energy storage** for **renewable energy systems**«*

Classic®

Industrial Batteries

The powerful range of Network Power

Energy storage solutions for critical systems that require uninterrupted power supply. GNB® Industrial Power offers powerful batteries for your individual needs. The below table is only indicative and depends on customers' specific applications. For more information please ask a GNB sales representative.

Applications	Battery ranges																		
	Sonnenschein							Marathon		Sprinter			Absolyte	Powerfit	Classic				
	A400/ A600	A400 FT	A500	A700	SOLAR	RAIL	Power Cycle	M - FT	M/L/ XL	S	P/XP	XP - FT	GP/GX	S300	GRoE	OCSM	OPzS	Energy Bloc/OGi	Solar	rail
Telecom	●	●	●	●			●	●	●	●		●	●			●	●	●		
UPS		●	●	●			●	●	●	●	●	●	●			●		●		
Emergency lighting	●		●						●		●	●		●			●	●		
Security	●		●	●							●	●		●		●	●			
Utility	●	●		●			●	●	●	●			●		●	●	●	●		
Railways	●	●	●	●		●	●	●	●	●			●			●		●		●
Photovoltaic					●		●						●						●	
Universal	●	●	●	●			●	●	●	●	●	●	●	●		●	●	●		

The GNB Network Power brand overview

ABSOLYTE® MARATHON® Sprinter® Powerfit®

> VRLA batteries (**V**alve **R**egulated **L**ead **A**cid) in which the electrolyte is fixed in an absorbent glass mat (AGM)
> Excellent high current capability
> Very economical
> Maintenance-free (no topping up)

Sonnenschein®

> VRLA batteries (**V**alve **R**egulated **L**ead **A**cid) in which the electrolyte is fixed in a gel (dryfit technology)
> Inventor of Gel technology
> Highest reliability, even in non-optimal conditions
> Particularly suitable for cyclic applications
> Maintenance-free (no topping up)

Classic®

> Conventional lead-acid batteries with liquid electrolyte
> Extreme reliability, proven over decades
> Low maintenance

BATTERY SERVICE ENERGY SOLUTIONS

> Further information about service is available on page 10

Classic OPzS Solar

Energy storage for outstanding power applications

The Classic OPzS Solar range has been well proven for decades in medium and large power applications. Due to their robustness, long design life and high operational safety they are ideally suitable for use in solar and wind power stations, telecommunications, power distribution companies, railways and many other safety equipment power supplies. The wide range of available capacities and sizes provides a solution for every power need, even in harsh environments.

Your benefits:

> **Optimised design for renewable energy applications** – highest cycling ability and long life

> **Special alloy and large electrolyte reserve** – very long topping up intervals

> **Low maintenance** – saving costs

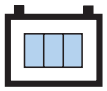
> **Completely recyclable** – low CO_2 footprint

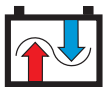
Specifications:

> Nominal capacity (C_{120} at 25 °C): 70.0 - 4600 Ah
> Very thick tubular positive plates for the most demanding applications
> Up to 2800 cycles at 60 % depth of discharge (C_{10}) with IU charging profile at 20 °C. For enhanced performance and for systems ≥ 48 V we recommend IUI charging to reach 3000 cycles and more.
> Designed in accordance with IEC 61427 and IEC 60896-11
> Screw connectors for a better contact and reliability
> Also available in dry-charged version with separate electrolyte
> High quality transparent or translucent containers for easy maintenance

Nominal capacity 70.0 – 4600 Ah

Block battery/ Single cell


Tubular plate


up to 3000*+ cycles at 60 % depth of discharge

Recyclable

Low maintenance

*Using IUI charging at 20 °C

Classic OPzS Solar

Technical data

Technical characteristics and data

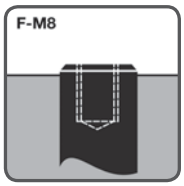
Type	Part number	Nom. voltage V	Nominal capacity C_{120} 1.85 Vpc 25 °C Ah	Length (l) max. mm	Width (b/w) max. mm	Height* (h) max. mm	Installed length (L) max. mm	Weight incl. acid approx. kg	Weight acid** approx. kg	Internal resistance mOhm	Short circuit current A	Terminal	Pole pairs
OPzS Solar 190	NVSL020190WC0FA	2	190	105	208	395	115	13.7	5.20	1.45	1400	F-M8	1
OPzS Solar 245	NVSL020245WC0FA	2	245	105	208	395	115	15.2	5.00	1.05	1950	F-M8	1
OPzS Solar 305	NVSL020305WC0FA	2	305	105	208	395	115	16.6	4.60	0.83	2450	F-M8	1
OPzS Solar 380	NVSL020380WC0FA	2	380	126	208	395	136	20.0	5.80	0.72	2850	F-M8	1
OPzS Solar 450	NVSL020450WC0FA	2	450	147	208	395	157	23.3	6.90	0.63	3250	F-M8	1
OPzS Solar 550	NVSL020550WC0FA	2	550	126	208	511	136	26.7	8.10	0.63	3250	F-M8	1
OPzS Solar 660	NVSL020660WC0FA	2	660	147	208	511	157	31.0	9.30	0.56	3650	F-M8	1
OPzS Solar 765	NVSL020765WC0FA	2	765	168	208	511	178	35.4	10.8	0.50	4100	F-M8	1
OPzS Solar 985	NVSL020985WC0FA	2	985	147	208	686	157	43.9	13.0	0.47	4350	F-M8	1
OPzS Solar 1080	NVSL021080WC0FA	2	1080	147	208	686	157	47.2	12.8	0.43	4800	F-M8	1
OPzS Solar 1320	NVSL021320WC0FA	2	1320	212	193	686	222	59.9	17.1	0.30	6800	F-M8	2
OPzS Solar 1410	NVSL021410WC0FA	2	1410	212	193	686	222	63.4	16.8	0.27	7500	F-M8	2
OPzS Solar 1650	NVSL021650WC0FA	2	1650	212	235	686	222	73.2	21.7	0.26	7900	F-M8	2
OPzS Solar 1990	NVSL021990WC0FA	2	1990	212	277	686	222	86.4	26.1	0.23	8900	F-M8	2
OPzS Solar 2350	NVSL022350WC0FA	2	2350	212	277	836	222	108	33.7	0.24	8500	F-M8	2
OPzS Solar 2500	NVSL022500WC0FA	2	2500	212	277	836	222	114	32.7	0.22	9300	F-M8	2
OPzS Solar 3100	NVSL023100WC0FA	2	3100	215	400	812	225	151	50.0	0.16	12800	F-M8	3
OPzS Solar 3350	NVSL023350WC0FA	2	3350	215	400	812	225	158	48.0	0.14	14600	F-M8	3
OPzS Solar 3850	NVSL023850WC0FA	2	3850	215	490	812	225	184	60.0	0.12	17000	F-M8	4
OPzS Solar 4100	NVSL024100WC0FA	2	4100	215	490	812	225	191	58.0	0.11	17800	F-M8	4
OPzS Solar 4600	NVSL024600WC0FA	2	4600	215	580	812	225	217	71.0	0.11	18600	F-M8	4
OPzS Solar 280	NVSL060280WC0FB	6	294	272	206	347	282	41.0	13.0	2.68	2283	F-M8	1
OPzS Solar 350	NVSL060350WC0FB	6	364	380	206	347	392	56.0	20.0	2.39	2800	F-M8	1
OPzS Solar 420	NVSL060420WC0FB	6	417	380	206	347	392	63.0	20.0	1.96	3106	F-M8	1
OPzS Solar 70	NVSL120070WC0FB	12	82.7	272	206	347	282	35.0	15.0	18.1	688	F-M8	1
OPzS Solar 140	NVSL120140WC0FB	12	139	272	206	347	282	45.0	14.0	9.26	1314	F-M8	1
OPzS Solar 210	NVSL120210WC0FB	12	210	380	206	347	392	64.0	19.0	6.46	1884	F-M8	1

Type	C_6 1.75 Vpc	C_{10} 1.80 Vpc	C_{12} 1.80 Vpc	C_{24} 1.80 Vpc	C_{48} 1.80 Vpc	C_{72} 1.80 Vpc	C_{100} 1.85 Vpc	C_{120} 1.85 Vpc	C_{240} 1.85 Vpc
OPzS Solar 190	122	132	134	145	165	175	185	190	200
OPzS Solar 245	159	173	176	190	215	230	240	245	260
OPzS Solar 305	203	220	224	240	270	285	300	305	320
OPzS Solar 380	250	273	277	300	330	350	370	380	400
OPzS Solar 450	296	325	330	355	395	420	440	450	470
OPzS Solar 550	353	391	398	430	480	515	540	550	580
OPzS Solar 660	422	469	477	515	575	615	645	660	695
OPzS Solar 765	492	546	555	600	670	710	750	765	805
OPzS Solar 985	606	700	710	770	860	920	970	985	1035
OPzS Solar 1080	669	773	784	845	940	1000	1055	1080	1100
OPzS Solar 1320	820	937	950	1030	1150	1230	1295	1320	1385
OPzS Solar 1410	888	1009	1024	1105	1225	1305	1380	1410	1440
OPzS Solar 1650	1024	1174	1190	1290	1440	1540	1620	1650	1730
OPzS Solar 1990	1218	1411	1430	1550	1730	1850	1950	1990	2090
OPzS Solar 2350	1573	1751	1770	1910	2090	2200	2300	2350	2470
OPzS Solar 2500	1667	1854	1875	2015	2215	2335	2445	2500	2600
OPzS Solar 3100	2080	2318	2343	2520	2755	2910	3040	3100	3250
OPzS Solar 3350	2268	2524	2550	2740	2985	3135	3280	3350	3520
OPzS Solar 3850	2592	2884	2915	3135	3430	3615	3765	3850	4040
OPzS Solar 4100	2775	3090	3125	3355	3650	3840	4000	4100	4300
OPzS Solar 4600	3099	3451	3490	3765	4100	4300	4500	4600	4850
OPzS Solar 280	203	206	229	250	296	304	287	294	338
OPzS Solar 350	245	257	284	311	374	383	355	364	424
OPzS Solar 420	284	309	322	354	420	432	408	417	482
OPzS Solar 70	55.0	51.5	63.7	69.4	78.4	79.8	81.0	82.7	92.9
OPzS Solar 140	95.4	103	108	118	141	145	136	139	162
OPzS Solar 210	131	154	162	177	206	217	203	210	234

Capacities in Ah (C_6 – C_{240} at 25 °C)

* Includes installed connector, the above mentioned height can differ depending on the used vent(s).
** Acid density d_N = 1.24 kg/l

Terminal and torque



12 Nm for blocks;
20 Nm for cells

Data is also valid for dry charged version.
Change »**W**« (Wet) to »**D**« (Dry) in the part number.
E.g.:

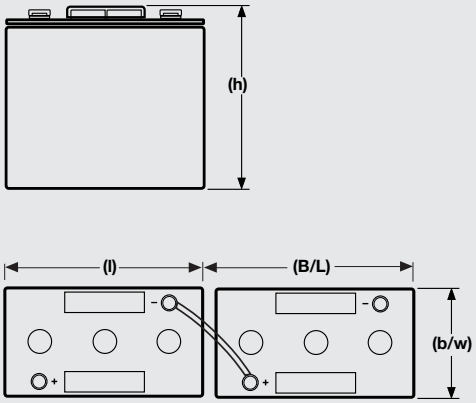
> filled and charged: NVSL120070 **W** C0FB
> dry charged: NVSL120070 **D** C0FB

Classic OPzS Solar

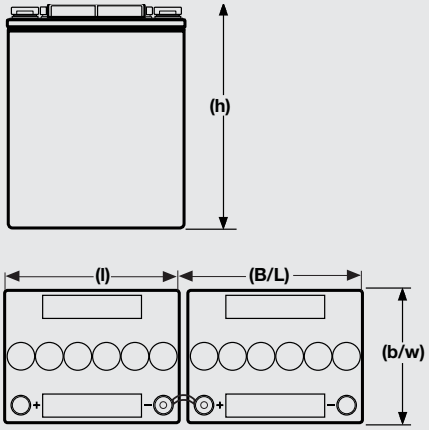
Drawings

Drawings with terminal position

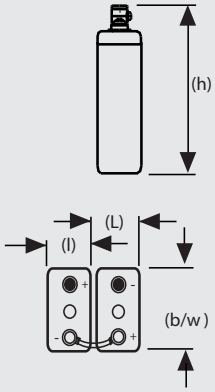
6 V Blocks



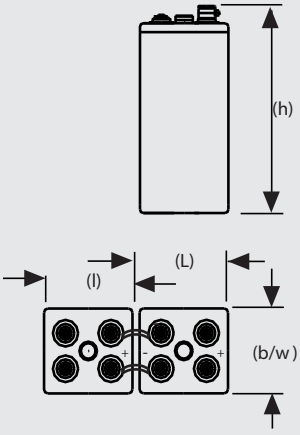
12 V Blocks



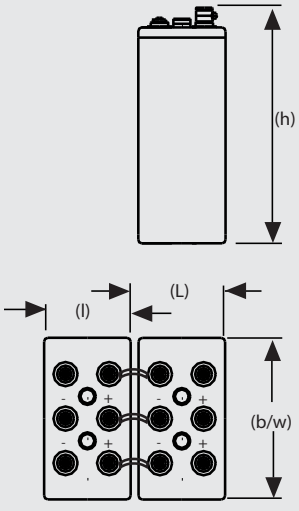
OPzS Solar 190 – OPzS Solar 1080



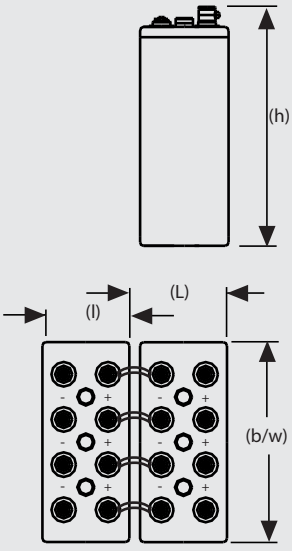
OPzS Solar 1320 – OPzS Solar 2500



OPzS Solar 3100 – OPzS Solar 3350



OPzS Solar 3850 – OPzS Solar 4600



Not to scale!

Classic EnerSol T

Powerful and universal, suitable for every application

Classic EnerSol T batteries are universal, low maintenance energy supplies for medium industrial solar systems. These lead acid batteries with liquid electrolyte are renowned for being safe and reliable due to their high performance. Typical applications are small solar and wind power systems, holiday and weekend houses.

Your benefits:

> **Positive tubular plates** – extremely robust design and enhanced cycling performance

> **Low maintenance** – saving costs

> **Completely recyclable** – low CO_2 footprint

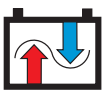
Specifications:

> Nominal capacity (C_{120} at 25 °C): 376 - 1282 Ah
> Containers made from translucent plastics for easy topping up
> Screw connectors for a better contact and reliability
> Also available in dry-charged version with separate electrolyte

Nominal capacity 376 – 1282 Ah

Single cell

Tubular plate


up to 2000 cycles acc. to IEC 60896-11 (60 % DoD)

Recyclable

Low maintenance

Classic EnerSol T

Technical data, Drawings

Technical characteristics and data

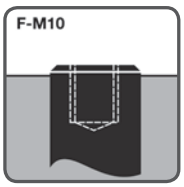
Type	Part number	Nom. voltage V	Nominal capacity C_{120} 1.85 Vpc 25 °C Ah	Length (l) max. mm	Width (b/w) max. mm	Height* (h) max. mm	Installed length (L) max. mm	Weight incl. acid approx. kg	Weight acid** approx. kg	Internal resistance mOhm	Short circuit current A	Terminal	Pole pairs
EnerSol T 370	NVTS020370WC0FA	2	376	83.0	199	445	93.0	17.3	5.10	0.70	2900	F-M10	1
EnerSol T 460	NVTS020460WC0FA	2	452	101	199	445	111	21.0	6.30	0.56	3625	F-M10	1
EnerSol T 550	NVTS020550WC0FA	2	542	119	199	445	129	24.7	7.50	0.46	4350	F-M10	1
EnerSol T 650	NVTS020650WC0FA	2	668	119	199	508	129	29.5	8.60	0.45	4500	F-M10	1
EnerSol T 760	NVTS020760WC0FA	2	779	137	199	508	147	31.0	10.0	0.38	5250	F-M10	1
EnerSol T 880	NVTS020880WC0FA	2	897	137	199	556	147	38.0	11.0	0.43	4660	F-M10	1
EnerSol T 1000	NVTS021000WC0FA	2	1025	155	199	556	165	43.1	12.6	0.38	5325	F-M10	1
EnerSol T 1130	NVTS021130WC0FA	2	1154	173	199	556	183	47.7	14.1	0.34	5991	F-M10	1
EnerSol T 1250	NVTS021250WC0FA	2	1282	191	199	556	201	52.8	15.6	0.30	6657	F-M10	1

* The above mentioned height can differ depending on the used vent(s).
**Acid density d_N = 1.26 kg/l

Type	C_6 1.75 V/C	C_{10} 1.80 V/C	C_{12} 1.80 V/C	C_{24} 1.80 V/C	C_{48} 1.80 V/C	C_{72} 1.80 V/C	C_{100} 1.85 V/C	C_{120} 1.85 V/C	C_{240} 1.85 V/C
EnerSol T 370	260	280	294	333	361	368	369	376	383
EnerSol T 460	327	350	367	416	437	460	444	452	478
EnerSol T 550	393	425	441	499	524	553	533	542	574
EnerSol T 650	492	527	552	625	656	668	647	668	719
EnerSol T 760	574	615	645	729	766	780	755	779	839
EnerSol T 880	654	714	742	840	854	953	869	897	966
EnerSol T 1000	755	809	848	960	1008	1089	993	1025	1104
EnerSol T 1130	850	910	954	1080	1134	1225	1117	1154	1242
EnerSol T 1250	944	1011	1060	1200	1260	1361	1241	1282	1380

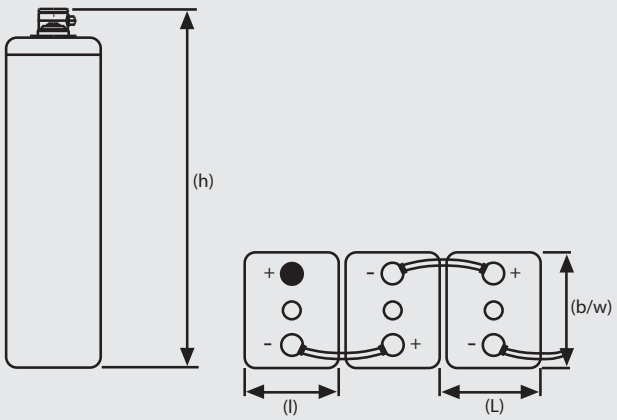
The capacities are given in Ah at 25 °C after 5 cycles.

Terminal and torque



25 Nm

Drawings with terminal position



Not to scale!

Classic EnerSol

Cost-effective energy storage

Classic EnerSol are robust flooded batteries for energy storage that is proven for use in leisure and consumer applications (SHS).

Your benefits:

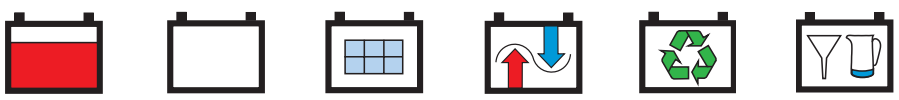
> **Thick grid plates** – excellent resistance to corrosion

> **Low maintenance** – saving costs

> **Completely recyclable** – low CO_2 footprint

Specifications:

> Longer design life in cyclic applications in comparison to a standard automotive battery
> Improved DC voltage, due to short intercell connections
> Internal pocket separators consisting of micro porous glass mat to ensure cell characteristics are retained over full life of the cell
> Terminal adapters can be provided
> Also available in dry-charged version with separate electrolyte



Nominal capacity 53.0 – 256 Ah | Block battery | Grid plate | Longer Design Life* | Recyclable | Low maintenance

* In cyclic applications in comparison to a standard automotive battery.

Classic EnerSol

Technical data, Drawings

Technical characteristics and data

Type	Part number	Nom. voltage V	Capacity C_{100} 1.85 Vpc 25 °C Ah	Nominal capacity C_{120} 1.85 Vpc 25 °C Ah	Discharge current I_{120} 1.85 Vpc A	Length (l) max. mm	Width (b/w) max. mm	Hight (h) max. mm	Weight incl. acid approx. kg	Weight acid* approx. kg	Terminal	Terminal position
EnerSol 50	NVCE120050WC0TA	12	52.0	53.0	0.44	210	175	190	13.7	2.10	A-Terminal	1
EnerSol 65	NVCE120065WC0TA	12	65.0	66.0	0.55	242	175	190	17.3	2.70	A-Terminal	1
EnerSol 80	NVCE120080WC0TA	12	78.0	80	0.66	278	175	190	20.7	4.70	A-Terminal	1
EnerSol 100	NVCE120100WC0TA	12	97.0	99.0	0.82	353	175	190	26.4	7.00	A-Terminal	1
EnerSol 130	NVCE120130WC0TA	12	130	132	1.10	349	175	290	33.0	10.9	A-Terminal	1
EnerSol 175	NVCE120175WC0TA	12	175	179	1.49	513	223	223	47.8	14.6	A-Terminal	2
EnerSol 250	NVCE120250WC0TA	12	250	256	2.13	518	276	242	63.0	18.6	A-Terminal	2

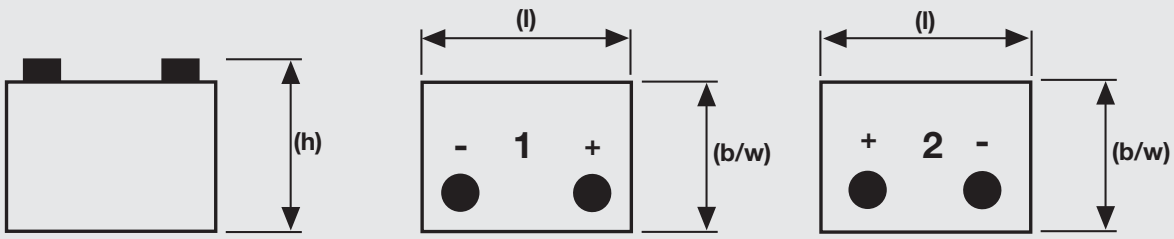
* Acid density d_N = 1.28 kg/l

Terminal and torque

8 Nm

Data is also valid for dry charged version.
Change »**W**« (Wet) to »**D**« (Dry) in the part number. E.g.:
> filled and charged: NVCE120050 **W** C0TA
> dry charged: NVCE120050 **D** C0TA

Drawings with terminal position



Not to scale!

Battery Service – Energy Solutions

Keeping your business on the move

GNB® is the Expert

Who could do this job better than the professionals of a company with more than 100 years of experience in battery development, production and application?

Leave the responsibility for the maintenance of your batteries and chargers to the professionals: a GNB service contract provides you with exceptional economic advantages through time savings, cost savings and safety!

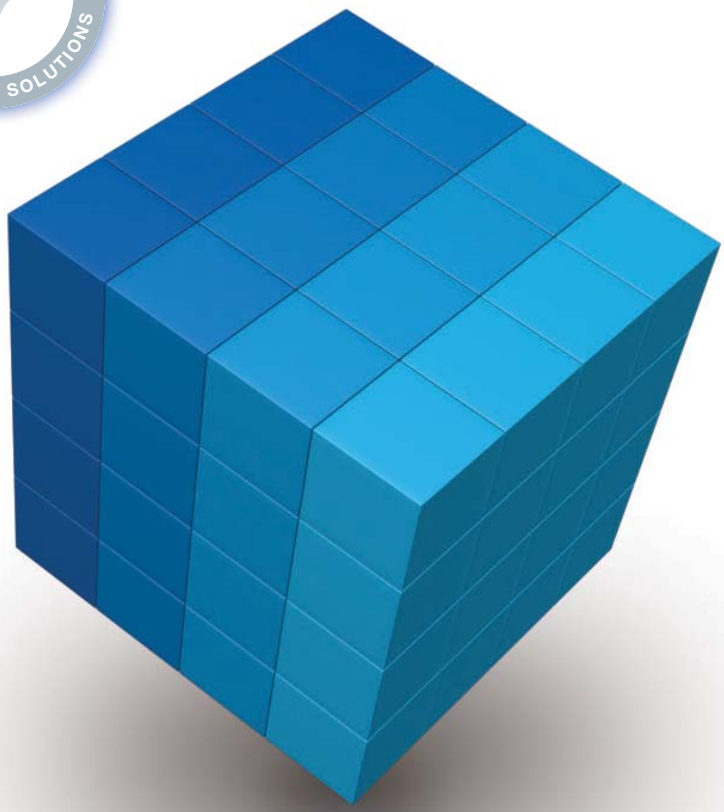
Installation of Batteries and Systems for Network Power

> Development of complete turnkey solutions from the design concept to installation and commissioning.

> Installation according to legal and safety regulations including CE certification by approved installation technicians.

> Training and certification of external installation technicians according to CE regulations.

BATTERY SERVICE ENERGY SOLUTIONS



- **Inspection Contract**
- **Maintenance Contract**
- **Lifetime Warranty Contract**
- **Full Service Contract**

*»**GNB Service** – individualized, professional and all over Europe!«*

Classic Solar

Notes

GNB®
INDUSTRIAL POWER
A Division of Exide Technologies

Exide Technologies, with operations in more than 80 countries, is one of the world's largest producers and recyclers of lead-acid batteries. Exide Technologies provides a comprehensive and customized range of stored electrical energy solutions. Based on over 120 years of experience in the development of innovative technologies, Exide Technologies is an esteemed partner of OEMs and serves the spare parts market for industrial and automotive applications.

GNB Industrial Power – A division of Exide Technologies – offers an extensive range of storage products and services, including solutions for telecommunication systems, railway applications, mining, photovoltaic (solar energy), uninterrupted power supply (UPS), electrical power generation and distribution, fork lifts and electric vehicles.

Exide Technologies takes pride in its commitment to a better environment. An integrated approach to manufacturing, distributing and recycling of lead-acid batteries has been developed to ensure a safe and responsible life cycle for all of its products.

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GNB® INDUSTRIAL POWER devises enduring energy concepts that convince with efficiency, flexibility and profitability.

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