

Industrial Batteries / Network Power

**Sonnenschein SOLAR**



»Premium quality for renewable energy«



# 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	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



- > VRLA batteries (Valve Regulated Lead Acid) in which the electrolyte is fixed in an absorbent glass mat (AGM)
- > Excellent high current capability
- > Very economical
- > Maintenance-free (no topping up)



- > VRLA batteries (Valve Regulated Lead Acid) 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)



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



> Further information about service is available on page 10

## Sonnenschein SOLAR

### The compact alternative for smaller solar applications

Sonnenschein SOLAR batteries are specially designed for small to medium performance requirements in leisure and consumer applications. The advantages of the maintenance free VRLA-batteries are enhanced by the worldwide excellent reputation and technical image of the dryfit technology.

#### Your benefits:

- > **Excellent cycling performance** – 800 cycles at 60% Depth of Discharge  $C_{10}$  (at 20 °C)
- > **dryfit Gel** – VRLA technology
- > **Lowest energy consumption** – saving costs
- > **Robust design** – resilient in harsh conditions
- > **Proof against deep discharge** – greater long-term energy delivery
- > **Completely recyclable** – low CO<sub>2</sub> footprint



#### Specifications:

- > Nominal capacity 6.60 – 230 Ah  $C_{100}$  (20 °C)
- > Long shelf life up to 2 years at 20 °C without recharge due to the very low self discharge rate
- > Designed in accordance with IEC 61427 and IEC 60896-21/22
- > Manufactured in Europe in our ISO 9001 certified production plants
- > Trouble-free transport of operational blocks, no restrictions for rail, road, sea and air transportation (IATA, DGR, clause A67)
- > Approval: UL (Underwriter Laboratories)

Nominal capacity 6.60 – 230 Ah $C_{100}$	Block battery	Grid plate	Recyclable	Valve regulated lead-acid batteries	Proof against deep discharge	Maintenance-free (no topping up)	800 cycles at 60 % DoD $C_{10}$

## Sonnenschein SOLAR

### Technical data

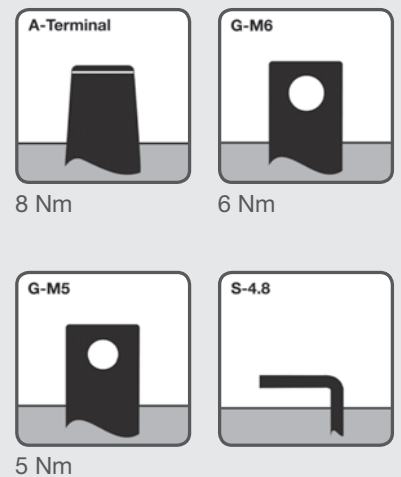
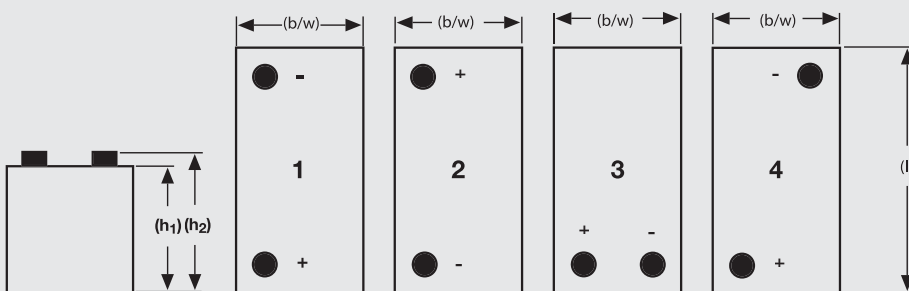
#### Technical characteristics and data

Type	Part number	Nom. voltage V	Nominal capacity $C_{100}$ 1.80 Vpc 20 °C Ah	Discharge current $I_{100}$ A	Length (l) max. mm	Width (b/w) max. mm	Height up to top of cover (h1) max. mm	Height including connectors (h2) max. mm	Weight approx. kg	Terminal	Terminal position
S12/6.6 S	NGS01206D6HSOSA	12	6.60	0.06	152	65.5	94.5	98.4	2.60	S-4.8	3
S12/17 G5	NGS0120017HSOBA	12	17.0	0.17	181	76.0	-	167	6.10	G-M5	1
S12/27 G5	NGS0120027HSOBA	12	27.0	0.27	167	176	-	126	9.60	G-M5	1
S12/32 G6	NGS0120032HSOBA	12	32.0	0.32	197	132	160	184	11.1	G-M6	2
S12/41 A	NGS0120041HSOCA	12	41.0	0.41	210	175	-	175	14.2	A-Terminal	1
S12/60 A	NGS0120060HSOCA	12	60.0	0.60	261	136	208	230	18.1	A-Terminal	1
S12/85 A	NGS0120085HSOCA	12	85.0	0.85	353	175	-	190	26.8	A-Terminal	1
S12/90 A	NGS0120090HSOCA	12	90.0	0.90	330	171	213	236	29.2	A-Terminal	2
S12/130 A	NGS0120130HSOCA	12	130	1.30	286	269	208	230	37.5	A-Terminal	4
S12/230 A	NGS0120230HSOCA	12	230	2.30	518	274	216	238	67.0	A-Terminal	3

#### Capacities $C_1$ - $C_{100}$ (20 °C) in Ah

Type	$C_1$ 1.70 Vpc	$C_5$ 1.70 Vpc	$C_{10}$ 1.70 Vpc	$C_{20}$ 1.75 Vpc	$C_{100}$ 1.80 Vpc
S12/6.6 S	2.90	4.60	5.10	5.70	6.60
S12/17 G5	9.30	12.6	14.3	15.0	17.0
S12/27 G5	15.0	22.1	23.5	24.0	27.0
S12/32 G6	16.9	24.4	27.0	28.0	32.0
S12/41 A	21.0	30.6	34.0	38.0	41.0
S12/60 A	30.0	42.5	47.5	50.0	60.0
S12/85 A	55.0	68.5	74.0	76.0	85.0
S12/90 A	50.5	72.0	78.0	84.0	90.0
S12/130 A	66.0	93.5	104	110	130
S12/230 A	120	170	190	200	230

#### Drawings with terminal position, terminal and torque



Not to scale!

## Sonnenschein SOLAR BLOCK

### Safe power supply for medium performance

The Sonnenschein SOLAR BLOCK battery range is very powerful and reliable in rough application conditions. This range is the ideal energy source for medium industrial solar systems, holiday and weekend houses, wind powerstations, as well as for other safety equipment power supplies.

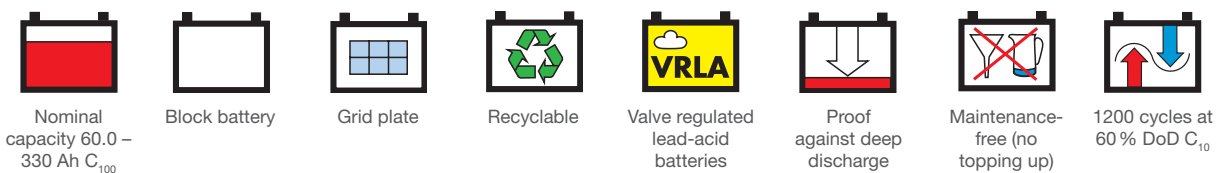
#### Your benefits:

- > **Excellent cycling performance** – 1200 cycles at 60% Depth of Discharge  $C_{10}$  (at 20 °C)
- > **dryfit Gel** – VRLA technology
- > **Lowest energy consumption** – saving costs
- > **Robust design** – resilient in harsh conditions
- > **Proof against deep discharge** – greater long-term energy delivery
- > **Completely recyclable** – low CO<sub>2</sub> footprint



#### Specifications:

- > Nominal capacity 60.0 – 330 Ah  $C_{100}$  (20 °C)
- > Long shelf life up to 2 years at 20 °C without recharge due to the very low self discharge rate
- > Designed in accordance with IEC 61427 and IEC 60896-21/22
- > Manufactured in Europe in our ISO 9001 certified production plants
- > Trouble-free transport of operational blocks, no restrictions for rail, road, sea and air transportation (IATA, DGR, clause A67)
- > Approval: UL (Underwriter Laboratories)



Nominal capacity 60.0 – 330 Ah  $C_{100}$

Block battery

Grid plate

Recyclable

Valve regulated lead-acid batteries

Proof against deep discharge

Maintenance-free (no topping up)

1200 cycles at 60 % DoD  $C_{10}$

## Sonnenschein SOLAR BLOCK

### Technical data

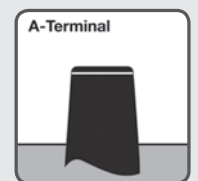
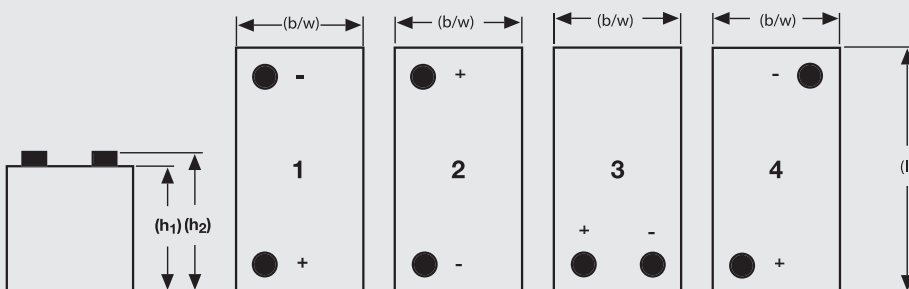
#### Technical characteristics and data

Type	Part number	Nom. voltage V	Nominal capacity $C_{100}$ 1.80 Vpc 20 °C Ah	Discharge current $I_{100}$ A	Length (l) max. mm	Width (b/w) max. mm	Height up to top of cover (h1) max. mm	Height including connectors (h2) max. mm	Weight approx. kg	Terminal	Terminal position
SB 6/200 A	NGSB060200HSOCA	6	200	2.00	246	192	254	275	29.0	A-Terminal	4
SB 6/330 A	NGSB060330HSOCA	6	330	3.30	312	182	337	359	47.0	A-Terminal	4
SB12/60 A	NGSB120060HSOCA	12	60.0	0.60	278	175	-	190	19.0	A-Terminal	1
SB12/75 A	NGSB120075HSOCA	12	75.0	0.75	330	171	214	236	28.8	A-Terminal	2
SB12/100 A	NGSB120100HSOCA	12	100	1.00	513	189	195	223	36.5	A-Terminal	3
SB12/130 A	NGSB120130HSOCA	12	130	1.30	513	223	195	223	45.5	A-Terminal	3
SB12/185 A	NGSB120185HSOCA	12	185	1.85	518	274	216	238	61.5	A-Terminal	3

#### Capacities $C_1 - C_{100}$ (20 °C) in Ah

Type	$C_1$ 1.70 Vpc	$C_5$ 1.70 Vpc	$C_{10}$ 1.70 Vpc	$C_{20}$ 1.75 Vpc	$C_{100}$ 1.80 Vpc
SB 6/200 A	104	153	162	180	200
SB 6/330 A	150	235	260	280	330
SB12/60 A	34.0	45.0	52.0	56.0	60.0
SB12/75 A	48.0	60.0	66.0	70.0	75.0
SB12/100 A	57.0	84.0	89.0	90.0	100
SB12/130 A	78.0	101	105	116	130
SB12/185 A	103	150	155	165	185

#### Drawings with terminal position, terminal and torque



8 Nm

Not to scale!

## Sonnenschein A600 SOLAR

### Unmatched dryfit Gel technology for renewable energy storage

Sonnenschein A600 SOLAR is a premium range, developed specifically for applications where cycling is required. It has extraordinary energy-saving features in addition to robust reliability, proven for decades in many installations worldwide.

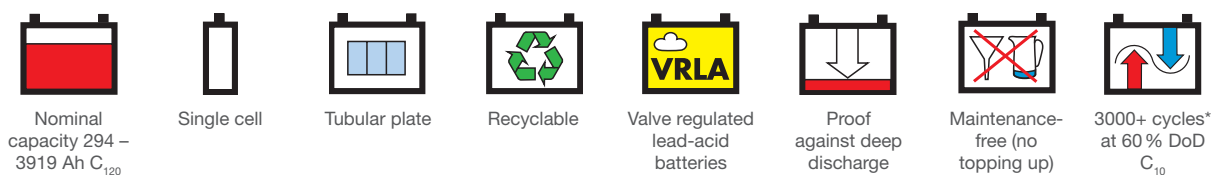
#### Your benefits:

- > **Exceptional cycling performance** – 3000+ cycles\* at 60 % Depth of Discharge  $C_{10}$
- > **dryfit Gel** – VRLA technology
- > **Lowest energy consumption** – saving costs
- > **Strong tubular plate technology** – for longer life in the toughest conditions
- > **Proof against deep discharge** – greater long-term energy delivery
- > **Horizontal mounting possible** – easy installation and maintenance
- > **Completely recyclable** – low CO<sub>2</sub> footprint



#### Specifications:

- > Nominal capacity 294 – 3919 Ah  $C_{120}$  (20°C)
- > Cycling performance at 20 °C (with IU charging): 2400 cycles at 60 % Depth of Discharge ( $C_{10}$ ) at 20 °C  
For enhanced performance and for systems  $\geq 48$  V we recommend IUI charging, to reach 3000+ cycles at 20 °C
- > Designed in accordance with IEC 61427 and IEC 60896-21/22
- > Long shelf life up to 2 years at 20 °C without recharge due to the very low self discharge rate
- > Also available as flame-retardant version on request (V0)
- > Manufactured in Europe in our ISO 9001 certified production plants
- > Trouble-free transport of operational cells, no restrictions for rail, road, sea and air transportation (IATA, DGR, clause A67)
- > Approval: UL (Underwriter Laboratories)



\*With IUI charging, at 20 °C

## Sonnenschein A600 SOLAR

### Technical data

#### Technical characteristics and data

Type	Part number	Nom. voltage V	Nominal capacity $C_{120}$ 1.85 Vpc 20 °C Ah	Discharge current $I_{120}$ A	Length (l) max. mm	Width (b/w) max. mm	Height up to top of cover (h1) max. mm	Height incl. connectors (h2) max. mm	Weight approx. kg	Terminal	Pole pairs
A602/295 SOLAR	NGS6020295HSOFC	2	294	2.45	105	208	357	399	19.0	F-M8	1
A602/370 SOLAR	NGS6020370HSOFC	2	367	3.05	126	208	357	399	23.0	F-M8	1
A602/440 SOLAR	NGS6020440HSOFC	2	440	3.66	147	208	357	399	27.0	F-M8	1
A602/520 SOLAR	NGS6020520HSOFC	2	519	4.32	126	208	473	515	30.0	F-M8	1
A602/625 SOLAR	NGS6020625HSOFC	2	623	5.19	147	208	473	515	35.0	F-M8	1
A602/750 SOLAR	NGS6020750HSOFC	2	727	6.05	168	208	473	515	39.0	F-M8	1
A602/850 SOLAR	NGS6020850HSOFC	2	845	7.06	147	208	648	690	49.0	F-M8	1
A602/1130 SOLAR	NGS6021130HSOFC	2	1126	9.42	212	193	648	690	66.0	F-M8	2
A602/1415 SOLAR	NGS6021415HSOFC	2	1408	11.7	212	235	648	690	80.0	F-M8	2
A602/1695 SOLAR	NGS6021695HSOFC	2	1689	14.1	212	277	648	690	95.0	F-M8	2
A602/1960C SOLAR	NGS6021960HSOFC	2	1994	16.3	212	277	717	759	115	F-M8	2
A602/2600 SOLAR	NGS6022600HSOFC	2	2613	21.7	216	400	775	816	160	F-M8	3
A602/3270 SOLAR	NGS6023270HSOFC	2	3266	27.2	214	489	774	816	198	F-M8	4
A602/3920 SOLAR	NGS6023920HSOFC	2	3919	32.6	214	578	774	816	238	F-M8	4

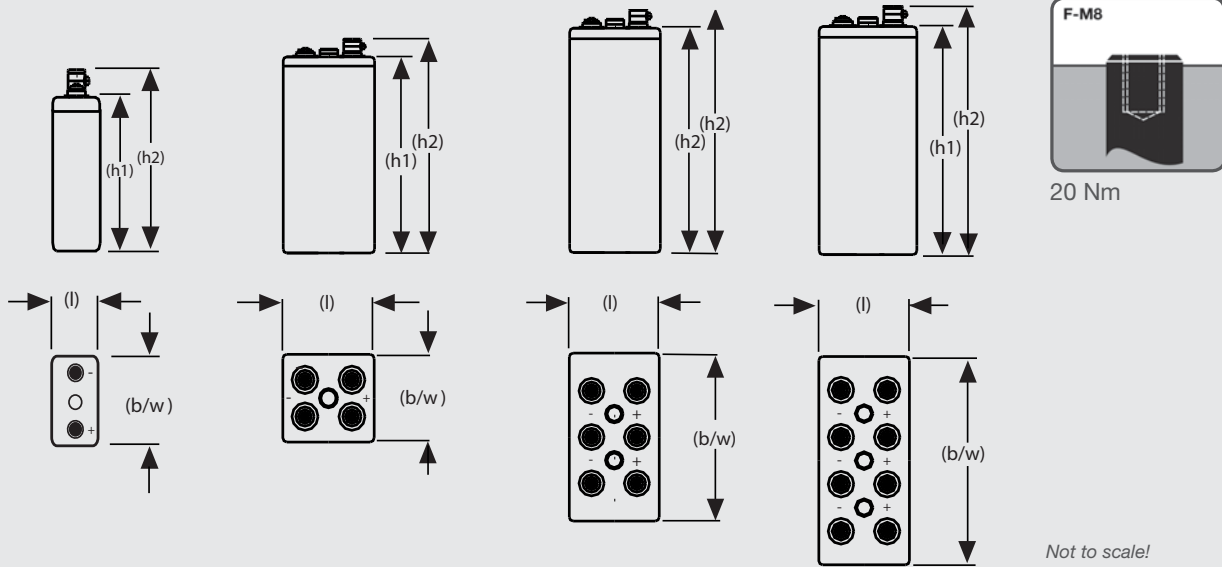
#### Capacities $C_1 - C_{120}$ (20 °C) in Ah

Type	$C_1$ 1.67 Vpc	$C_3$ 1.75 Vpc	$C_5$ 1.77 Vpc	$C_{10}$ 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
A602/295 SOLAR	124	167	193	217	248	273	289	285	294
A602/370 SOLAR	155	209	241	272	310	342	362	357	367
A602/440 SOLAR	186	251	289	326	372	410	434	428	440
A602/520 SOLAR	229	307	342	379	435	471	503	505	519
A602/625 SOLAR	275	369	410	455	523	565	604	606	623
A602/750 SOLAR	321	431	479	531	610	659	705	707	727
A602/850 SOLAR	368	520	614	681	729	782	827	822	845
A602/1130 SOLAR	491	694	818	908	973	1043	1102	1096	1126
A602/1415 SOLAR	614	867	1023	1135	1216	1304	1378	1370	1408
A602/1695 SOLAR	737	1041	1228	1362	1459	1565	1654	1644	1689
A602/1960C SOLAR	867	1222	1371	1593	1803	1942	2016	1957	1994
A602/2600 SOLAR	1047	1548	1782	2024	2276	2472	2599	2547	2613
A602/3270 SOLAR	1309	1935	2227	2530	2846	3090	3249	3184	3266
A602/3920 SOLAR	1571	2322	2673	3036	3415	3708	3899	3821	3919



# Sonnenschein A600 SOLAR

## Drawings with terminal position, terminal and torque



## Battery Service – Energy Solutions

Keeping your business on the move

### GNB® is the Expert

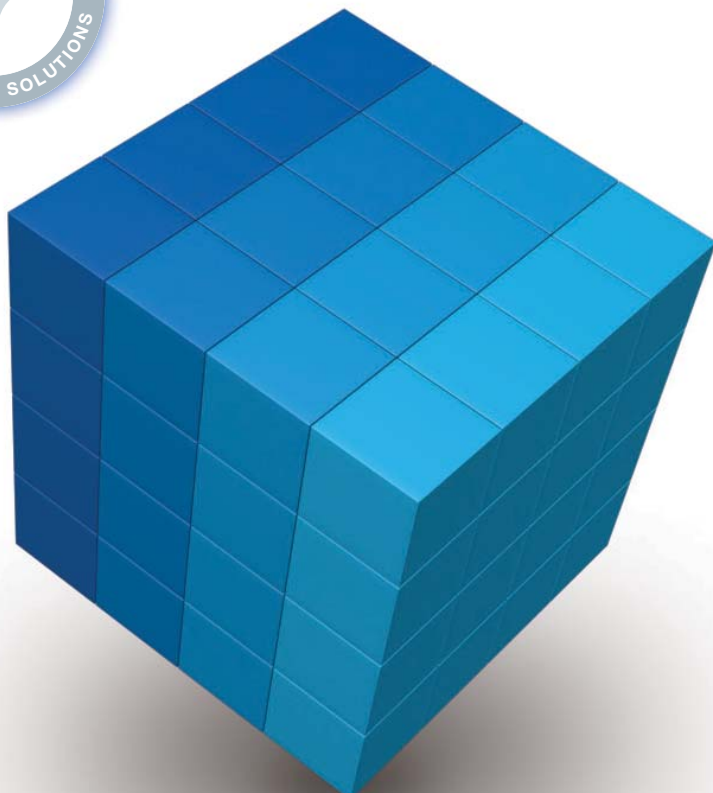
Who could do this job better than the professionals of a company with more than 100 years of experience in battery development, production and application?

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.



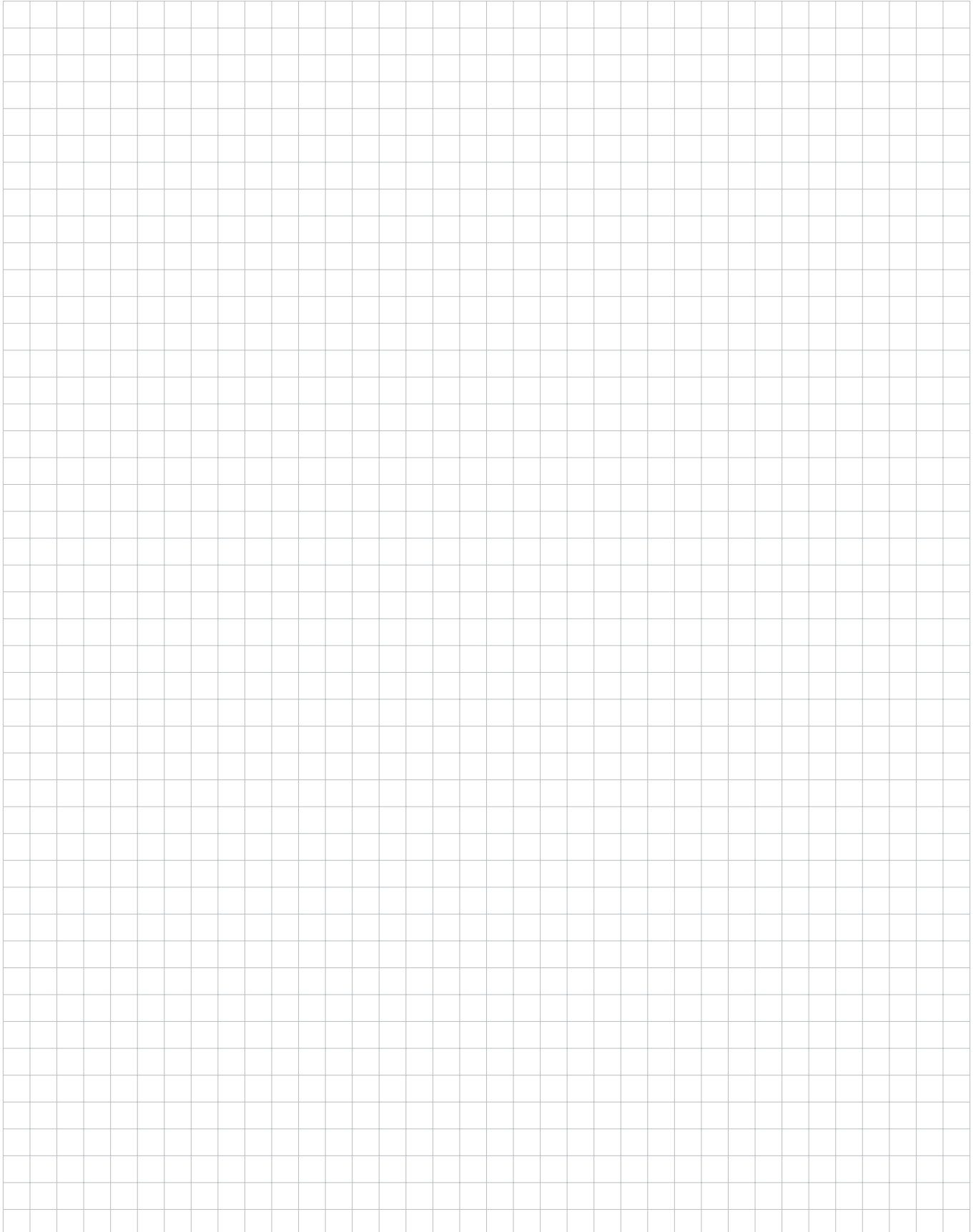
- ✦ Inspection Contract
- ✦ Maintenance Contract
- ✦ Lifetime Warranty Contract
- ✦ Full Service Contract



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

## Sonnenschein Solar

### Notes

A large, empty grid of graph paper, consisting of many small squares, intended for taking notes. The grid is composed of 20 columns and 30 rows of squares.



**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.