GNB INDUSTRIAL POWER
A Division of Exide Technologies

Industrial Batteries / Network Power

Sonnenschein A600

dryfit® inside

*»**Premium quality** for*
***uninterrupted communication**«*

Sonnenschein

GNB INDUSTRIAL POWER

Network Power

Reliable back-up power for every need

GNB® Industrial Power offers reliable energy storage solutions for critical systems requiring uninterrupted power supply. With a comprehensive product range based on state-of-the-art technologies, GNB delivers the right battery for every application.

The below table is only indicative and depends on the specific customer application. For more information please ask a GNB sales representative.

APPLICATIONS	BATTERY RANGES																		
	Sonnenschein						Marathon			Sprinter		Absolyte	Powerfit	Classic					
	A400/ A600	A400 FT	A500	SOLAR	RAIL	Power Cycle	M-FT	FTX	L/XL	P/XP	XP-FT	GP/GX	S100/ S100L/ S300	OCSM	OPzS	Energy Bloc/OGi	OPzS Solar	EnerSol	rail
UPS Data Centre	●	●	●			●	●	●	●	●	●	●		●		●			
Industrial UPS	●	●	●			●	●	●	●	●	●	●		●		●			
Telecom Good grid	●	●				●	●	●	●		●				●	●			
Telecom Poor & Off-grid				●		●						●		●			●		
Renewable				●		●						●					●	●	
Emergency lighting	●	●	●			●	●	●	●	●	●		●		●	●			
Security	●		●							●	●		●	●	●				
Utility	●	●				●	●	●	●			●		●	●	●			
Railways	●	●	●		●	●	●		●			●		●		●			●

Powerful product brands

ABSOLYTE® MARATHON® Sprinter® Powerfit®

> VRLA batteries (**V**alve **R**egulated **L**ead **A**cid) in which the electrolyte is fixed in an **A**bsorbent **G**lass **M**at (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

Sonnenschein A600

More than just OPzV

Sonnenschein A600 has extraordinary energy-saving features in addition with robust reliability, proven for decades in many installations worldwide.

Your benefits:

> **dryfit Gel** – VRLA technology

> **Lowest energy consumption** – saving costs

> **Robust design** – resilient in harsh conditions

> **Proof against deep discharge** – greater long-term energy delivery

> **Strong tubular plate design** – extremely long design life

> **Horizontal mounting possible** – easy installation and maintenance

> **Completely recyclable** – low CO_2 footprint

Specifications:

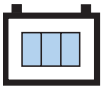
> Very low gassing due to internal gas recombination
> Nominal capacity 100 – 3286 Ah C_{10}
> Design life: 15 years for 6/12 V blocks and 20 years for 2 V cells at 20 °C (80 % remaining capacity from C_{10})
> Available as standard or flame retardant version (UL 94-V0)
> Long shelf life up to 2 years at 20 °C without recharge due to the very low self discharge rate

> Cells in compliance with DIN 40 742
> Blocks in compliance with DIN 40 744
> Designed in accordance with IEC 60896-21/-22
> Manufactured in Europe in our ISO 9001 certified production plants

Design life in years: 15 for blocks 20 for cells

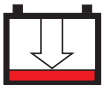
Nominal capacity 100 – 3286 Ah

Block battery / single cell


Tubular plate

Recyclable

Valve regulated lead-acid batteries


Proof against deep discharge

Maintenance-free (no topping up)

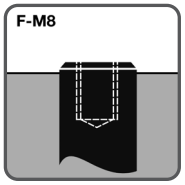
Sonnenschein A600
Technical data

Technical characteristics and data

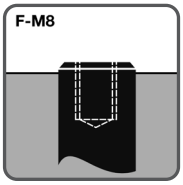
Type	Part number	Type acc. to [1]DIN 40 742 [2]DIN 40 744	Nom. voltage V	Nominal capacity C_{10} 1.80 Vpc 20 °C Ah	Length (l) max. mm	Width (b/w) max. mm	Height (h1) max. mm	Height* (h2) max. mm	Weight approx. kg	Internal resistance mOhm	Short circuit current A	Terminal	Pole pairs
A602/225	NGA6020225HS0FA	4 OPzV 200[1]	2	224	105	208	357	399	17.4	0.95	2200	F-M8	1
A602/280	NGA6020280HS0FA	5 OPzV 250[1]	2	280	126	208	357	399	22.0	0.79	2700	F-M8	1
A602/335	NGA6020335HS0FA	6 OPzV 300[1]	2	337	147	208	357	399	25.0	0.61	3350	F-M8	1
A602/415	NGA6020415HS0FA	5 OPzV 350[1]	2	416	126	208	473	515	30.0	0.62	3300	F-M8	1
A602/500	NGA6020500HS0FA	6 OPzV 420[1]	2	499	147	208	473	515	35.0	0.53	3950	F-M8	1
A602/580	NGA6020580HS0FA	7 OPzV 490[1]	2	582	168	208	473	515	39.0	0.47	4400	F-M8	1
A602/750	NGA6020750HS0FA	6 OPzV 600[1]	2	748	147	208	648	690	49.0	0.48	4300	F-M8	1
A602/1010	NGA6021010HS0FA	8 OPzV 800[1]	2	998	212	193	648	690	66.0	0.38	4850	F-M8	2
A602/1250	NGA6021250HS0FA	10 OPzV 1000[1]	2	1248	212	235	648	690	80.0	0.33	6250	F-M8	2
A602/1510	NGA6021510HS0FA	12 OPzV 1200[1]	2	1497	212	277	648	690	95.0	0.29	7850	F-M8	2
A602/1650C	NGA6021650HS0FA	12 OPzV 1500[1]	2	1643	212	277	717	759	106	0.23	9000	F-M8	2
A602/2200	NGA6022200HS0FA	16 OPzV 2000[1]	2	2190	216	400	775	816	149	0.19	10750	F-M8	3
A602/2740	NGA6022740HS0FA	20 OPzV 2500[1]	2	2738	214	489	774	816	190	0.16	13400	F-M8	4
A602/3300	NGA6023300HS0FA	24 OPzV 3000[1]	2	3286	214	578	774	816	238	0.13	16100	F-M8	4
A606/200	NGA6060200HS0FC	6V 4 OPzV 200[2]	6	200	272	206	323	347	45.7	2.71	1707	F-M8	1
A606/300	NGA6060300HS0FC	6V 6 OPzV 300[2]	6	300	380	206	323	347	65.4	1.90	2614	F-M8	1
A612/100	NGA6120100HS0FC	12V 2 OPzV 100[2]	12	100	272	206	323	347	46.2	9.68	1934	F-M8	1
A612/150	NGA6120150HS0FC	12V 3 OPzV 150[2]	12	150	380	206	323	347	66.9	6.43	2896	F-M8	1

*includes installed connector

Approval, container, terminal and torque



blocks – 12 Nm



cells – 20 Nm

> Approval:

Blocks:
- DIN/Gost/TÜV, Russia

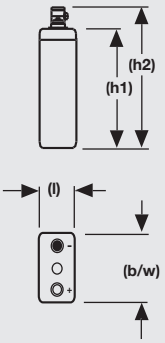
Cells:
- Underwriters Laboratories (UL), USA
- DNV GL (Germanischer Loyd)
- DIN/Gost/TÜV, Russia
- By many Telecom organisations worldwide

Data are also valid for UL 94-V0 version.
Change »**H**« to »**V**« in the part number. E.g.:
> Standard: NGA6120100 **H** S0FC
> UL 94-V0: NGA6120100 **V** S0FC

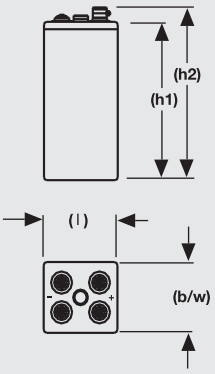
Sonnenschein A600

Drawings

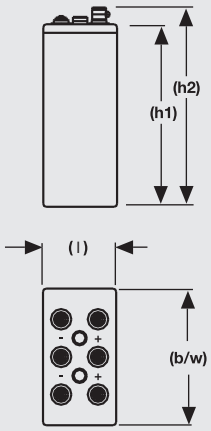
A602/225 - A602/750



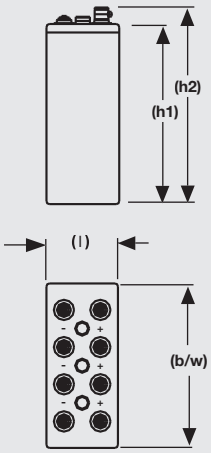
A602/1010 - A602/1650C



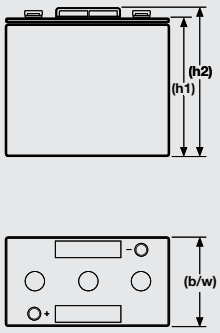
A602/2200



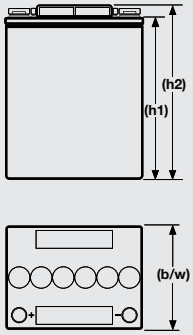
A602/2740 - A602/3300



A606/200 - A606/300



A612/100 - A612/150



Sonnenschein A600

Constant current discharge · A600 blocks

1.87 Vpc – Discharge in A at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	171	157	145	120	89.1	59.3	45.1	36.8	31.3	22.0	18.6
A606/300	NGA6060300HS0FC	252	233	217	181	136	91.2	69.2	56.2	47.6	33.1	27.8
A612/100	NGA6120100HS0FC	95.3	87.6	81.0	66.0	47.7	30.9	23.2	18.8	15.9	11.1	9.30
A612/150	NGA6120150HS0FC	143	132	122	99.8	71.5	45.9	34.4	27.9	23.6	16.6	14.0

1.83 Vpc – Discharge in A at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	205	187	172	139	100	64.8	48.6	39.3	33.3	23.2	19.5
A606/300	NGA6060300HS0FC	298	273	253	208	153	99.9	74.8	60.2	50.7	35.0	29.2
A612/100	NGA6120100HS0FC	113	103	95.2	76.3	53.5	33.6	24.9	20.0	16.9	11.7	9.80
A612/150	NGA6120150HS0FC	171	157	145	115	80.1	49.7	36.8	29.6	25.0	17.4	14.7

1.80 Vpc – Discharge in A at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	231	209	192	152	107	67.9	50.5	40.7	34.3	23.8	20.0
A606/300	NGA6060300HS0FC	332	303	280	228	164	105	78.0	62.5	52.4	36.0	30.0
A612/100	NGA6120100HS0FC	126	115	105	83.4	57.0	34.9	25.6	20.5	17.3	11.9	10.0
A612/150	NGA6120150HS0FC	192	176	161	126	85.1	51.7	38.0	30.5	25.7	17.9	15.0

1.75 Vpc – Discharge in A at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	274	246	223	172	116	71.5	52.7	42.2	35.5	24.5	20.5
A606/300	NGA6060300HS0FC	389	353	324	258	180	111	81.8	65.1	54.4	37.1	30.9
A612/100	NGA6120100HS0FC	148	134	122	93.6	60.7	36.0	26.2	21.0	17.6	12.1	10.2
A612/150	NGA6120150HS0FC	227	207	188	142	90.9	53.7	39.1	31.3	26.3	18.2	15.3

1.70 Vpc – Discharge in A at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	317	281	251	187	122	73.6	53.9	43.0	36.1	24.9	20.8
A606/300	NGA6060300HS0FC	447	402	366	284	191	115	84.1	66.6	55.5	37.7	31.3
A612/100	NGA6120100HS0FC	171	153	138	101	62.5	36.4	26.5	21.1	17.7	12.2	10.2
A612/150	NGA6120150HS0FC	262	236	212	153	94.2	54.6	39.7	31.6	26.6	18.4	15.5

1.65 Vpc – Discharge in A at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	359	313	276	198	126	74.8	54.5	43.5	36.4	25.1	20.9
A606/300	NGA6060300HS0FC	504	449	405	305	199	118	85.4	67.5	56.1	38.0	31.6
A612/100	NGA6120100HS0FC	193	172	152	105	63.1	36.6	26.5	21.1	17.7	12.2	10.2
A612/150	NGA6120150HS0FC	297	265	234	161	95.8	55.1	39.9	31.8	26.7	18.5	15.5

1.60 Vpc – Discharge in A at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	399	343	297	206	128	75.5	54.9	43.7	36.6	25.2	21.0
A606/300	NGA6060300HS0FC	560	494	439	320	203	119	86.1	67.9	56.5	38.2	31.7
A612/100	NGA6120100HS0FC	215	188	163	107	63.3	36.6	26.6	21.2	17.8	12.2	10.2
A612/150	NGA6120150HS0FC	331	292	253	165	96.6	55.3	40.0	31.9	26.8	18.5	15.6

Sonnenschein A600

Constant current discharge · A600 cells

1.90 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	144	126	107	76.2	59.6	45.7	31.2	21.4	18.3
A602/280	NGA6020280HS0FA	180	158	134	95.3	74.5	57.1	39.0	26.8	22.9
A602/335	NGA6020335HS0FA	216	189	161	114	89.4	68.6	46.8	32.1	22.5
A602/415	NGA6020415HS0FA	244	231	187	143	112	90.0	65.3	44.8	36.7
A602/500	NGA6020500HS0FA	293	277	224	172	134	108	78.4	53.8	44.0
A602/580	NGA6020580HS0FA	342	323	262	200	157	126	91.4	62.7	51.4
A602/750	NGA6020750HS0FA	270	258	243	214	167	138	102	71.9	60.3
A602/1010	NGA6021010HS0FA	360	344	324	285	223	184	136	95.9	80.4
A602/1250	NGA6021250HS0FA	450	430	405	357	278	230	171	120	101
A602/1510	NGA6021510HS0FA	517	516	486	428	334	276	205	144	121
A602/1650C	NGA6021650HS0FA	518	518	507	420	312	261	205	155	129
A602/2200	NGA6022200HS0FA	691	669	639	581	469	381	284	207	172
A602/2740	NGA6022740HS0FA	863	837	798	727	587	477	355	259	216
A602/3300	NGA6023300HS0FA	1036	1004	958	872	704	572	427	310	259

1.87 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	173	156	124	83.9	64.7	49.5	34.7	24.2	20.5
A602/280	NGA6020280HS0FA	216	195	155	105	80.9	61.9	43.4	30.3	25.6
A602/335	NGA6020335HS0FA	260	234	186	126	97.1	74.3	52.1	36.3	30.8
A602/415	NGA6020415HS0FA	308	284	223	163	119	96.6	69.4	47.8	39.6
A602/500	NGA6020500HS0FA	370	341	268	196	143	116	83.3	57.4	47.5
A602/580	NGA6020580HS0FA	431	398	313	228	167	135	97.2	66.9	55.4
A602/750	NGA6020750HS0FA	340	327	305	248	190	154	113	78.0	64.5
A602/1010	NGA6021010HS0FA	453	436	407	331	253	205	150	104	86.0
A602/1250	NGA6021250HS0FA	567	545	508	413	317	257	188	130	108
A602/1510	NGA6021510HS0FA	623	623	610	496	380	308	226	156	129
A602/1650C	NGA6021650HS0FA	624	624	615	548	380	319	227	167	139
A602/2200	NGA6022200HS0FA	832	817	793	632	520	437	313	223	185
A602/2740	NGA6022740HS0FA	1040	1022	992	790	650	547	391	278	231
A602/3300	NGA6023300HS0FA	1248	1226	1190	948	780	656	469	334	277

1.85 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	194	171	137	90.0	68.1	52.0	36.3	25.2	21.3
A602/280	NGA6020280HS0FA	243	214	171	113	85.1	65.0	45.4	31.5	26.6
A602/335	NGA6020335HS0FA	291	257	206	135	102	78.0	54.5	37.8	32.0
A602/415	NGA6020415HS0FA	332	308	249	176	124	101	71.3	49.1	40.0
A602/500	NGA6020500HS0FA	398	370	299	211	149	121	85.6	58.9	48.5
A602/580	NGA6020580HS0FA	465	431	349	246	174	141	100	68.7	56.6
A602/750	NGA6020750HS0FA	389	368	336	269	202	165	119	82.1	67.6
A602/1010	NGA6021010HS0FA	519	491	448	359	269	220	159	109	90.1
A602/1250	NGA6021250HS0FA	648	613	560	448	337	275	199	137	113
A602/1510	NGA6021510HS0FA	701	701	672	538	404	330	238	164	135
A602/1650C	NGA6021650HS0FA	702	702	683	597	431	339	252	181	150
A602/2200	NGA6022200HS0FA	1031	972	864	680	555	463	335	241	200
A602/2740	NGA6022740HS0FA	1288	1215	1080	850	693	578	419	302	249
A602/3300	NGA6023300HS0FA	1546	1458	1296	1020	832	694	503	362	299

Sonnenschein A600

Constant current discharge · A600 cells

1.83 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	209	182	148	97.7	71.4	54.9	38.0	26.2	22.0
A602/280	NGA6020280HS0FA	261	228	185	122	89.3	68.6	47.5	32.8	27.5
A602/335	NGA6020335HS0FA	314	273	222	147	107	82.4	57.0	39.3	33.0
A602/415	NGA6020415HS0FA	350	337	265	187	130	104	72.9	49.8	40.9
A602/500	NGA6020500HS0FA	420	404	318	224	156	125	87.5	59.8	49.1
A602/580	NGA6020580HS0FA	490	472	371	262	182	146	102	69.7	57.3
A602/750	NGA6020750HS0FA	421	404	365	290	216	175	125	86.3	70.4
A602/1010	NGA6021010HS0FA	561	539	487	387	288	233	167	115	93.9
A602/1250	NGA6021250HS0FA	702	673	608	483	360	292	208	144	117
A602/1510	NGA6021510HS0FA	755	755	716	580	432	350	250	173	141
A602/1650C	NGA6021650HS0FA	756	756	717	645	480	374	268	190	157
A602/2200	NGA6022200HS0FA	1123	1077	944	733	589	497	358	254	210
A602/2740	NGA6022740HS0FA	1403	1347	1180	917	737	622	447	317	262
A602/3300	NGA6023300HS0FA	1684	1616	1416	1100	884	746	537	381	314

1.80 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	232	196	162	106	75.6	58.0	39.2	26.6	22.4
A602/280	NGA6020280HS0FA	290	245	203	133	94.5	72.5	49.0	33.3	28.0
A602/335	NGA6020335HS0FA	348	294	243	159	113	87.0	58.8	39.9	33.7
A602/415	NGA6020415HS0FA	397	364	280	201	135	107	75.1	50.8	41.6
A602/500	NGA6020500HS0FA	476	437	336	241	162	128	90.1	61.0	49.9
A602/580	NGA6020580HS0FA	556	510	392	281	189	149	105	71.1	58.2
A602/750	NGA6020750HS0FA	478	458	388	314	228	182	131	90.5	74.8
A602/1010	NGA6021010HS0FA	637	611	517	419	304	243	175	121	99.8
A602/1250	NGA6021250HS0FA	797	763	647	523	380	303	218	151	125
A602/1510	NGA6021510HS0FA	858	858	776	628	456	364	262	181	150
A602/1650C	NGA6021650HS0FA	859	859	808	694	526	410	287	199	164
A602/2200	NGA6022200HS0FA	1279	1197	1076	863	657	531	378	266	219
A602/2740	NGA6022740HS0FA	1598	1497	1345	1078	822	663	473	332	274
A602/3300	NGA6023300HS0FA	1918	1796	1614	1294	986	796	567	399	329

1.75 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	265	229	182	115	79.9	60.3	39.8	27.0	22.6
A602/280	NGA6020280HS0FA	331	286	228	144	100	75.4	49.8	33.8	28.3
A602/335	NGA6020335HS0FA	398	344	273	173	120	90.5	59.7	40.5	33.9
A602/415	NGA6020415HS0FA	423	389	300	215	139	109	76.6	51.8	42.6
A602/500	NGA6020500HS0FA	508	467	360	258	167	131	91.9	62.2	51.1
A602/580	NGA6020580HS0FA	592	545	420	301	195	153	107	72.5	59.6
A602/750	NGA6020750HS0FA	561	534	463	354	240	190	135	92.2	75.9
A602/1010	NGA6021010HS0FA	748	712	617	472	320	253	180	123	101
A602/1250	NGA6021250HS0FA	935	890	772	590	400	317	225	154	127
A602/1510	NGA6021510HS0FA	1048	1048	926	708	480	380	269	184	152
A602/1650C	NGA6021650HS0FA	1049	1049	982	777	585	452	309	209	172
A602/2200	NGA6022200HS0FA	1356	1313	1237	1012	712	567	397	278	229
A602/2740	NGA6022740HS0FA	1695	1642	1547	1265	890	708	496	348	287
A602/3300	NGA6023300HS0FA	2034	1970	1856	1518	1068	850	596	418	344

Sonnenschein A600

Constant current discharge · A600 cells

1.70 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	290	258	201	120	81.6	60.8	40.2	27.3	22.7
A602/280	NGA6020280HS0FA	363	323	251	150	102	76.0	50.3	34.1	28.4
A602/335	NGA6020335HS0FA	435	387	302	180	122	91.2	60.3	41.0	34.1
A602/415	NGA6020415HS0FA	468	425	334	220	142	111	78.2	52.4	43.0
A602/500	NGA6020500HS0FA	562	510	401	264	170	133	93.8	62.9	51.6
A602/580	NGA6020580HS0FA	655	595	468	308	199	155	109	73.4	60.2
A602/750	NGA6020750HS0FA	639	615	527	388	252	195	136	92.7	76.4
A602/1010	NGA6021010HS0FA	852	820	703	517	336	260	181	124	102
A602/1250	NGA6021250HS0FA	1065	1025	878	647	420	325	226	155	127
A602/1510	NGA6021510HS0FA	1267	1230	1054	776	504	390	271	185	153
A602/1650C	NGA6021650HS0FA	1268	1260	1135	903	623	479	322	222	176
A602/2200	NGA6022200HS0FA	1557	1480	1365	1140	753	580	406	285	234
A602/2740	NGA6022740HS0FA	1947	1850	1707	1425	942	725	507	356	293
A602/3300	NGA6023300HS0FA	2336	2220	2048	1710	1130	870	608	427	351

1.65 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	314	278	212	122	82.5	61.0	40.4	27.5	22.8
A602/280	NGA6020280HS0FA	393	348	265	153	103	76.3	50.5	34.4	28.5
A602/335	NGA6020335HS0FA	471	417	318	183	124	91.5	60.6	41.3	34.2
A602/415	NGA6020415HS0FA	488	458	354	230	144	112	79.3	52.8	43.4
A602/500	NGA6020500HS0FA	586	550	425	276	173	134	95.2	63.4	52.1
A602/580	NGA6020580HS0FA	683	641	496	322	202	157	111	73.9	60.8
A602/750	NGA6020750HS0FA	715	696	583	411	255	197	136	93.2	76.8
A602/1010	NGA6021010HS0FA	953	928	777	548	340	262	182	124	102
A602/1250	NGA6021250HS0FA	1192	1160	972	685	425	328	227	155	128
A602/1510	NGA6021510HS0FA	1430	1392	1166	822	510	394	272	186	154
A602/1650C	NGA6021650HS0FA	1463	1446	1249	960	645	491	328	225	178
A602/2200	NGA6022200HS0FA	1760	1608	1476	1208	777	596	413	289	238
A602/2740	NGA6022740HS0FA	2200	2010	1845	1510	972	745	516	361	297
A602/3300	NGA6023300HS0FA	2640	2412	2214	1812	1166	894	619	433	356

1.60 Vpc – Discharge in A at 20 °C

Type	Part number	10 min	15 min	30 min	1 h	2 h	3 h	5 h	8 h	10 h
A602/225	NGA6020225HS0FA	326	300	222	123	82.8	61.2	40.6	27.6	22.9
A602/280	NGA6020280HS0FA	408	375	278	154	104	76.5	50.8	34.5	28.6
A602/335	NGA6020335HS0FA	489	450	333	185	124	91.8	60.9	41.4	34.4
A602/415	NGA6020415HS0FA	500	478	382	238	146	113	80.2	53.2	43.8
A602/500	NGA6020500HS0FA	600	574	458	286	175	136	96.2	63.8	52.6
A602/580	NGA6020580HS0FA	700	669	535	333	204	158	112	74.5	61.3
A602/750	NGA6020750HS0FA	786	767	632	429	260	198	137	93.6	77.2
A602/1010	NGA6021010HS0FA	1048	1023	843	572	347	264	182	125	103
A602/1250	NGA6021250HS0FA	1310	1278	1053	715	433	330	228	156	129
A602/1510	NGA6021510HS0FA	1572	1534	1264	858	520	396	273	187	154
A602/1650C	NGA6021650HS0FA	1604	1480	1295	992	662	497	332	226	180
A602/2200	NGA6022200HS0FA	2059	1872	1664	1267	807	607	417	292	240
A602/2740	NGA6022740HS0FA	2573	2340	2080	1583	1008	758	522	365	300
A602/3300	NGA6023300HS0FA	3088	2808	2496	1900	1210	910	626	438	360

Sonnenschein A600

Constant power discharge · A600 blocks

1.87 Vpc – Discharge in W/block at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	999	915	774	654	468	324	247	201	171	118	98.0
A606/300	NGA6060300HS0FC	1500	1341	1206	918	687	480	372	300	256	177	147
A612/100	NGA6120100HS0FC	1092	978	858	726	490	329	247	200	170	118	98.0
A612/150	NGA6120150HS0FC	1566	1422	1218	1032	720	491	370	301	255	177	146

1.83 Vpc – Discharge in W/block at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	1131	999	900	729	516	342	261	211	179	124	102
A606/300	NGA6060300HS0FC	1551	1374	1227	1056	756	507	393	315	268	183	153
A612/100	NGA6120100HS0FC	1236	1068	984	792	536	347	261	211	179	124	101
A612/150	NGA6120150HS0FC	1788	1554	1398	1146	786	517	392	316	268	187	153

1.80 Vpc – Discharge in W/block at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	1254	1098	993	816	567	363	277	220	185	128	106
A606/300	NGA6060300HS0FC	1704	1533	1368	1188	831	537	414	330	277	192	159
A612/100	NGA6120100HS0FC	1368	1188	1062	834	587	364	276	215	185	127	106
A612/150	NGA6120150HS0FC	1968	1716	1548	1212	864	542	415	329	277	191	159

1.75 Vpc – Discharge in W/block at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	1335	1206	999	834	597	372	280	224	189	129	106
A606/300	NGA6060300HS0FC	1827	1695	1383	1221	882	549	420	333	284	193	159
A612/100	NGA6120100HS0FC	1470	1314	1122	894	618	377	280	223	188	128	106
A612/150	NGA6120150HS0FC	2112	1902	1578	1296	912	562	419	335	283	193	159

1.70 Vpc – Discharge in W/block at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	1428	1314	1170	918	627	390	284	225	190	129	106
A606/300	NGA6060300HS0FC	2037	1854	1650	1347	921	582	426	336	284	193	159
A612/100	NGA6120100HS0FC	1560	1422	1290	972	648	400	284	226	190	129	106
A612/150	NGA6120150HS0FC	2262	2058	1848	1410	948	593	427	339	285	193	159

1.65 Vpc – Discharge in W/block at 20 °C

Type	Part number	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h
A606/200	NGA6060200HS0FC	1575	1386	1230	933	627	390	284	225	190	129	106
A606/300	NGA6060300HS0FC	2211	1974	1743	1368	921	582	426	336	284	193	159
A612/100	NGA6120100HS0FC	1686	1512	1344	990	648	400	284	226	190	129	106
A612/150	NGA6120150HS0FC	2454	2196	1944	1422	948	593	427	339	285	193	159

Sonnenschein A600

Constant power discharge · A600 cells

1.90 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	265	258	248	236	219	197	158	122	101	83.2	69.6
A602/280	NGA6020280HS0FA	331	323	310	295	274	246	198	153	126	104	87.0
A602/335	NGA6020335HS0FA	398	387	372	354	329	296	237	183	152	125	104
A602/415	NGA6020415HS0FA	481	473	463	410	384	343	273	205	158	130	111
A602/500	NGA6020500HS0FA	577	568	556	492	461	412	328	246	190	156	133
A602/580	NGA6020580HS0FA	673	662	648	574	538	480	382	287	221	182	155
A602/750	NGA6020750HS0FA	743	683	588	535	513	495	436	357	294	248	211
A602/1010	NGA6021010HS0FA	991	911	784	713	684	660	581	476	392	331	281
A602/1250	NGA6021250HS0FA	1019	1019	980	892	855	825	727	595	490	413	352
A602/1510	NGA6021510HS0FA	1020	1020	1020	1020	1020	990	872	714	588	496	422
A602/1650C	NGA6021650HS0FA	1021	1021	1021	1021	1021	1021	765	598	513	461	415
A602/2200	NGA6022200HS0FA	1411	1399	1373	1344	1323	1287	1152	908	732	596	511
A602/2740	NGA6022740HS0FA	1763	1748	1717	1680	1653	1608	1440	1135	915	745	638
A602/3300	NGA6023300HS0FA	2116	2098	2060	2016	1984	1930	1728	1362	1098	894	766

1.87 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	315	300	289	270	255	229	172	130	107	90.4	76.9
A602/280	NGA6020280HS0FA	394	375	361	338	319	286	215	163	134	113	96.1
A602/335	NGA6020335HS0FA	473	450	434	405	383	344	258	195	161	136	115
A602/415	NGA6020415HS0FA	534	509	485	445	418	375	302	223	180	146	121
A602/500	NGA6020500HS0FA	641	611	582	534	502	450	362	268	216	175	145
A602/580	NGA6020580HS0FA	748	713	679	623	585	525	423	312	252	204	169
A602/750	NGA6020750HS0FA	772	757	712	648	636	592	495	395	328	276	229
A602/1010	NGA6021010HS0FA	1029	1009	949	864	848	789	660	527	437	368	305
A602/1250	NGA6021250HS0FA	1161	1161	1161	1080	1060	987	825	658	547	460	382
A602/1510	NGA6021510HS0FA	1162	1162	1162	1162	1162	1162	990	790	656	552	458
A602/1650C	NGA6021650HS0FA	1163	1163	1163	1163	1163	1163	997	769	632	523	442
A602/2200	NGA6022200HS0FA	1523	1507	1467	1423	1396	1357	1251	1025	843	697	589
A602/2740	NGA6022740HS0FA	1903	1883	1833	1778	1745	1697	1563	1282	1053	872	737
A602/3300	NGA6023300HS0FA	2284	2260	2200	2134	2094	2036	1876	1538	1264	1046	884

1.85 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	343	326	305	290	270	246	181	134	111	94.6	80.0
A602/280	NGA6020280HS0FA	429	408	381	363	338	308	226	168	139	118	100
A602/335	NGA6020335HS0FA	515	489	458	435	405	369	272	201	167	142	120
A602/415	NGA6020415HS0FA	612	569	528	489	457	401	323	234	188	153	128
A602/500	NGA6020500HS0FA	734	683	634	587	548	481	388	281	226	184	154
A602/580	NGA6020580HS0FA	857	797	739	685	640	561	452	328	263	214	179
A602/750	NGA6020750HS0FA	798	772	748	696	686	643	523	410	343	288	240
A602/1010	NGA6021010HS0FA	1064	1029	997	928	915	857	697	547	457	384	320
A602/1250	NGA6021250HS0FA	1264	1264	1247	1160	1143	1072	872	683	572	480	400
A602/1510	NGA6021510HS0FA	1265	1265	1265	1265	1265	1238	1046	820	686	576	480
A602/1650C	NGA6021650HS0FA	1266	1266	1266	1266	1266	1239	1102	797	635	539	484
A602/2200	NGA6022200HS0FA	1673	1653	1587	1520	1467	1403	1301	1101	916	757	639
A602/2740	NGA6022740HS0FA	2092	2067	1983	1900	1833	1753	1627	1377	1145	947	798
A602/3300	NGA6023300HS0FA	2510	2480	2380	2280	2200	2104	1952	1652	1374	1136	958

Sonnenschein A600

Constant power discharge · A600 cells

1.83 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	357	342	331	305	290	265	189	137	114	96.7	82.1
A602/280	NGA6020280HS0FA	446	428	414	381	363	331	236	171	143	121	103
A602/335	NGA6020335HS0FA	536	513	497	458	435	398	284	206	171	145	123
A602/415	NGA6020415HS0FA	636	603	561	520	491	431	341	242	196	159	134
A602/500	NGA6020500HS0FA	763	724	673	624	589	517	409	290	235	191	161
A602/580	NGA6020580HS0FA	890	844	785	728	687	603	477	339	274	223	188
A602/750	NGA6020750HS0FA	856	819	790	748	732	698	550	424	357	300	249
A602/1010	NGA6021010HS0FA	1141	1092	1053	997	976	931	733	565	476	400	332
A602/1250	NGA6021250HS0FA	1374	1365	1317	1247	1220	1163	917	707	595	500	415
A602/1510	NGA6021510HS0FA	1375	1375	1375	1360	1359	1316	1100	848	714	600	498
A602/1650C	NGA6021650HS0FA	1376	1376	1376	1361	1360	1317	1163	868	680	572	511
A602/2200	NGA6022200HS0FA	1897	1867	1840	1717	1673	1517	1376	1149	965	807	681
A602/2740	NGA6022740HS0FA	2372	2333	2300	2147	2092	1897	1720	1437	1207	1008	852
A602/3300	NGA6023300HS0FA	2846	2800	2760	2576	2510	2276	2064	1724	1448	1210	1022

1.80 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	393	367	358	335	309	283	199	140	117	100	84.2
A602/280	NGA6020280HS0FA	491	459	448	419	386	354	249	175	146	125	105
A602/335	NGA6020335HS0FA	590	551	537	503	464	425	299	210	176	150	126
A602/415	NGA6020415HS0FA	710	669	603	572	540	480	368	252	201	166	140
A602/500	NGA6020500HS0FA	852	803	724	686	648	576	442	302	241	199	168
A602/580	NGA6020580HS0FA	994	937	844	801	756	672	515	353	281	232	196
A602/750	NGA6020750HS0FA	964	939	888	833	810	782	597	439	372	314	263
A602/1010	NGA6021010HS0FA	1285	1252	1184	1111	1080	1043	796	585	496	419	351
A602/1250	NGA6021250HS0FA	1539	1539	1480	1388	1350	1303	995	732	620	523	438
A602/1510	NGA6021510HS0FA	1540	1540	1540	1540	1540	1441	1189	878	744	628	526
A602/1650C	NGA6021650HS0FA	1541	1541	1541	1541	1541	1442	1190	961	746	619	538
A602/2200	NGA6022200HS0FA	2171	2133	2072	1961	1903	1765	1541	1209	1024	867	728
A602/2740	NGA6022740HS0FA	2713	2667	2590	2452	2378	2207	1927	1512	1280	1083	910
A602/3300	NGA6023300HS0FA	3256	3200	3108	2942	2854	2648	2312	1814	1536	1300	1092

1.75 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	454	442	410	390	352	312	211	144	121	102	87.3
A602/280	NGA6020280HS0FA	568	553	513	488	440	390	264	180	151	128	109
A602/335	NGA6020335HS0FA	681	663	615	585	528	468	317	216	182	153	131
A602/415	NGA6020415HS0FA	764	743	676	624	600	526	398	265	206	171	143
A602/500	NGA6020500HS0FA	917	892	811	749	720	631	478	318	247	205	171
A602/580	NGA6020580HS0FA	1070	1040	946	874	840	736	557	371	288	239	200
A602/750	NGA6020750HS0FA	1069	1048	1007	955	918	880	670	457	386	329	275
A602/1010	NGA6021010HS0FA	1425	1397	1343	1273	1224	1173	893	609	515	439	367
A602/1250	NGA6021250HS0FA	1782	1747	1678	1592	1530	1467	1117	762	643	548	458
A602/1510	NGA6021510HS0FA	1817	1817	1817	1817	1817	1736	1340	914	772	658	550
A602/1650C	NGA6021650HS0FA	1818	1818	1818	1818	1818	1737	1341	1046	827	671	582
A602/2200	NGA6022200HS0FA	2479	2459	2401	2224	2120	1985	1684	1268	1088	919	776
A602/2740	NGA6022740HS0FA	3098	3073	3002	2780	2650	2482	2105	1585	1360	1148	970
A602/3300	NGA6023300HS0FA	3718	3688	3602	3336	3180	2978	2526	1902	1632	1378	1164

Sonnenschein A600

Constant power discharge · A600 cells

1.70 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	539	504	454	430	390	346	225	146	122	104	88.9
A602/280	NGA6020280HS0FA	674	630	568	538	488	433	281	183	153	130	111
A602/335	NGA6020335HS0FA	809	756	681	645	585	519	338	219	183	156	133
A602/415	NGA6020415HS0FA	849	811	764	696	650	573	421	275	209	173	143
A602/500	NGA6020500HS0FA	1019	973	917	835	780	688	505	330	251	207	172
A602/580	NGA6020580HS0FA	1189	1135	1070	974	910	802	589	385	293	242	200
A602/750	NGA6020750HS0FA	1208	1173	1120	1060	1006	960	725	479	395	338	279
A602/1010	NGA6021010HS0FA	1611	1564	1493	1413	1341	1280	967	639	526	450	372
A602/1250	NGA6021250HS0FA	2013	1955	1867	1767	1677	1600	1208	798	658	563	465
A602/1510	NGA6021510HS0FA	2094	2094	2094	2051	2014	1844	1450	958	789	675	558
A602/1650C	NGA6021650HS0FA	2095	2095	2095	2052	2015	1845	1451	1101	873	704	595
A602/2200	NGA6022200HS0FA	2627	2627	2572	2481	2400	2221	1801	1300	1112	943	800
A602/2740	NGA6022740HS0FA	3283	3283	3215	3102	3000	2777	2252	1625	1390	1178	1000
A602/3300	NGA6023300HS0FA	3940	3940	3858	3722	3600	3332	2702	1950	1668	1414	1200

1.65 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	636	579	521	464	426	372	235	150	123	105	90.4
A602/280	NGA6020280HS0FA	795	724	651	580	533	465	294	188	154	131	113
A602/335	NGA6020335HS0FA	954	869	782	696	639	558	353	225	185	158	136
A602/415	NGA6020415HS0FA	954	915	821	748	710	598	430	276	210	173	143
A602/500	NGA6020500HS0FA	1145	1098	985	898	852	718	516	331	252	208	172
A602/580	NGA6020580HS0FA	1336	1281	1149	1047	994	837	602	386	294	242	201
A602/750	NGA6020750HS0FA	1386	1313	1243	1173	1110	1023	745	495	395	338	280
A602/1010	NGA6021010HS0FA	1848	1751	1657	1564	1480	1364	993	660	527	451	373
A602/1250	NGA6021250HS0FA	2310	2188	2072	1955	1850	1705	1242	825	658	563	467
A602/1510	NGA6021510HS0FA	2368	2368	2318	2226	2151	1991	1490	990	790	676	560
A602/1650C	NGA6021650HS0FA	2369	2369	2319	2227	2151	1992	1555	1150	903	726	612
A602/2200	NGA6022200HS0FA	2872	2811	2707	2629	2547	2408	1915	1373	1137	951	812
A602/2740	NGA6022740HS0FA	3590	3513	3383	3287	3183	3010	2393	1717	1422	1188	1015
A602/3300	NGA6023300HS0FA	4308	4216	4060	3944	3820	3612	2872	2060	1706	1426	1218

1.60 Vpc – Discharge in W/cell at 20 °C

Type	Part number	3 min	5 min	10 min	15 min	20 min	30 min	1 h	2 h	3 h	4 h	5 h
A602/225	NGA6020225HS0FA	671	620	588	506	459	381	240	152	124	105	90.4
A602/280	NGA6020280HS0FA	839	775	735	633	574	476	300	190	155	131	113
A602/335	NGA6020335HS0FA	1007	930	882	759	689	572	360	228	186	158	136
A602/415	NGA6020415HS0FA	1017	967	906	790	738	624	436	277	210	173	144
A602/500	NGA6020500HS0FA	1220	1160	1087	948	886	749	523	332	252	208	173
A602/580	NGA6020580HS0FA	1424	1354	1268	1106	1033	874	610	388	294	243	201
A602/750	NGA6020750HS0FA	1469	1442	1387	1272	1183	1048	765	502	395	338	280
A602/1010	NGA6021010HS0FA	1959	1923	1849	1696	1577	1397	1020	669	527	451	374
A602/1250	NGA6021250HS0FA	2448	2403	2312	2120	1972	1747	1275	837	659	564	467
A602/1510	NGA6021510HS0FA	2643	2562	2376	2262	2195	2087	1530	1004	791	677	561
A602/1650C	NGA6021650HS0FA	2644	2563	2377	2263	2196	2088	1616	1174	915	736	620
A602/2200	NGA6022200HS0FA	3259	3120	2800	2733	2667	2543	2005	1387	1141	961	819
A602/2740	NGA6022740HS0FA	4073	3900	3500	3417	3333	3178	2507	1733	1427	1202	1023
A602/3300	NGA6023300HS0FA	4888	4680	4200	4100	4000	3814	3008	2080	1712	1442	1228

Battery and Charger 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!

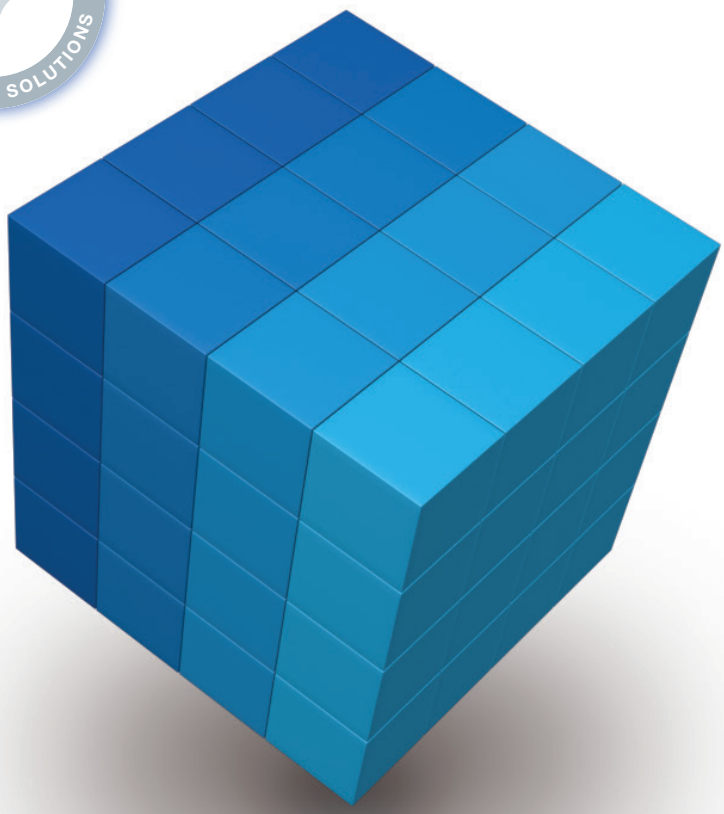
Installation of Batteries and Systems for Network Power

> 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!«*

Sonnenschein A600

Notes

GNB INDUSTRIAL POWER

Exide Technologies, with operations in more than 80 countries and more than 130 years of experience, is one of the world's largest producers and recyclers of lead-acid batteries. The company develops state-of-the-art energy storage solutions for the automotive and industrial market. Leading car, truck and lift truck manufacturers trust in Exide Technologies as an original equipment supplier. Exide also serves the aftermarket through a portfolio of successful and well-known brands.

Exide Transportation manufactures batteries for light and commercial vehicles, as well as agricultural and marine leisure applications. Industrial markets – under the division **GNB Industrial Power** – include efficient energy storage solutions for motive power applications such as lift trucks, cleaning machines and other commercial electrical vehicles, and network power applications such as telecommunications systems, renewables, and uninterruptible power supply (UPS).

Exide's engineers have always been at the forefront of bringing important innovations to the industry. Exide's ISO/TS-certified manufacturing facilities ensure that customers receive products that are produced with maximum efficiency and fulfill the highest quality standards, while minimizing impact on the environment.

Exide's extensive sales and distribution network provides quality service and delivers on time to its customers. Its world-class recycling facilities ensure that batteries will be reused, helping to make a positive contribution to the environment. Exide also provides services, accessories and energy consulting to its clients.

- Headquarters
- Manufacturing plants
- Recycling plants
- Distribution centers
- Main sales offices
- R&D centres

Manufacturing plants ISO 9001 and ISO 14001 certified
Automotive plants IATF 16949 approved

Subject to alterations

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