



# SVT - Gel

GEL VRLA Batteries for Solar Application



The **SVT GEL VRLA** Batteries (Valve Regulated Lead Acid) Gel Batteries are completely maintenance free, sealed construction batteries that eliminate the need for watering. **SVT GEL VRLA** Batteries are very easily installed and can operate in any position.

**Sunlight SVT GEL VRLA** Batteries Superiority points. The batteries have a very long-lived period; they have a very low self-discharge, increased durability and deep cycle ability. They are designed for heavy demand applications.

**SVT GEL VRLA** Batteries have fully tanked formed plates and the electrolyte is trioxotropic Gelled. The acid can not leak out, and no equalization charge is required. **SVT GEL VRLA** Batteries are safely transported and are classed as non-hazardous goods (according to FAA and IATA).

Photovoltaic modules can convert sun light into electricity quietly, reliably and without pollution. Sun light can be utilized to supply electricity everywhere. From remote houses in Alaska to telecom stations in Sahara and from rooftop of public building in Athens, to parking meters in streets of Brussels.

In some applications, electricity from photovoltaic modules has to be stored in batteries and utilized at night or when the sunlight is not enough to cover the consumption.

The photovoltaic module technology has then to be complemented by an equally reliable and efficient battery technology. **Sunlight** has the solution.

## Specifications

Nominal Voltage	2 Volts
Operating Temperature	-10° C to 45° C
Grid alloy	Calcium / Tin lead alloy
Plates	Flat Pasted
Separator	Micro-porous polymer with AGM mat
Active material	Very high purity lead
Case and cover	ABS
Charge Voltage	Cyclic 2.35 VPC. Float - 2.25 – 2.30 VPC @20° C
Electrolyte	Gelled Sulphuric acid – Analytical grade purity
Venting Valve	EPDM Rubber – 1.5 to 4 psi release pressure
Flame Arrester	Built in flame arrester In valve assembly
Terminal	Insert type – Epoxy sealed by extended mechanical paths M8 Thread
Interconnectors	Tin-plated copper bar. Insulated cable.



Pb

We keenly encourage environmental awareness; PLEASE follow guidelines for the recycling/disposal of lead.

## Applications

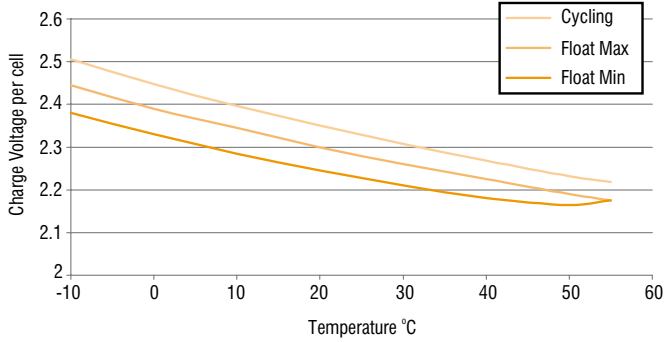
- Solar
  - Wind
  - Photovoltaic
  - Cycling / Float service
  - Telecommunications
  - Switch Gear
  - Control Systems
  - Cellular Radio Stations
  - Cathodic Protection
  - Navigation Aids
  - Marine equipment
  - Electric power systems
- Many other deep cycle applications

## Applicable Standards

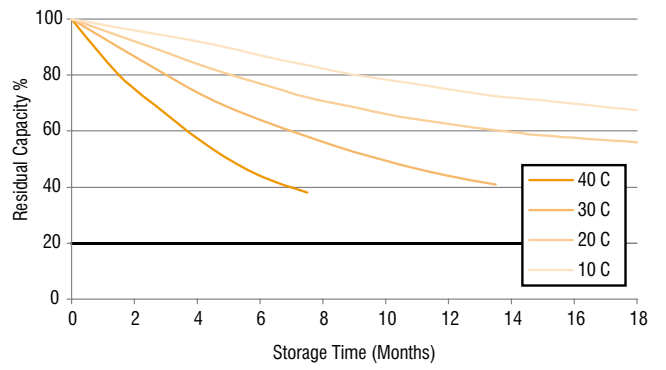
- IEC 896 - 2
- BS 6290 - 4
- UL 94 HB, VO under request



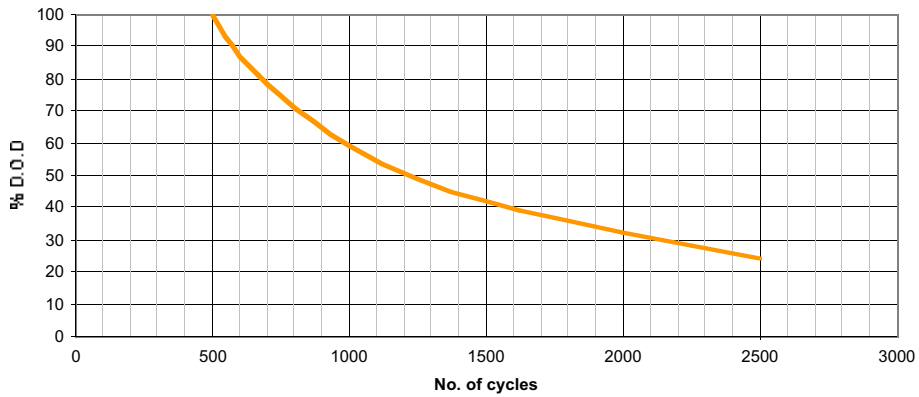
**Relationship Between Charge Voltage and Temperature**



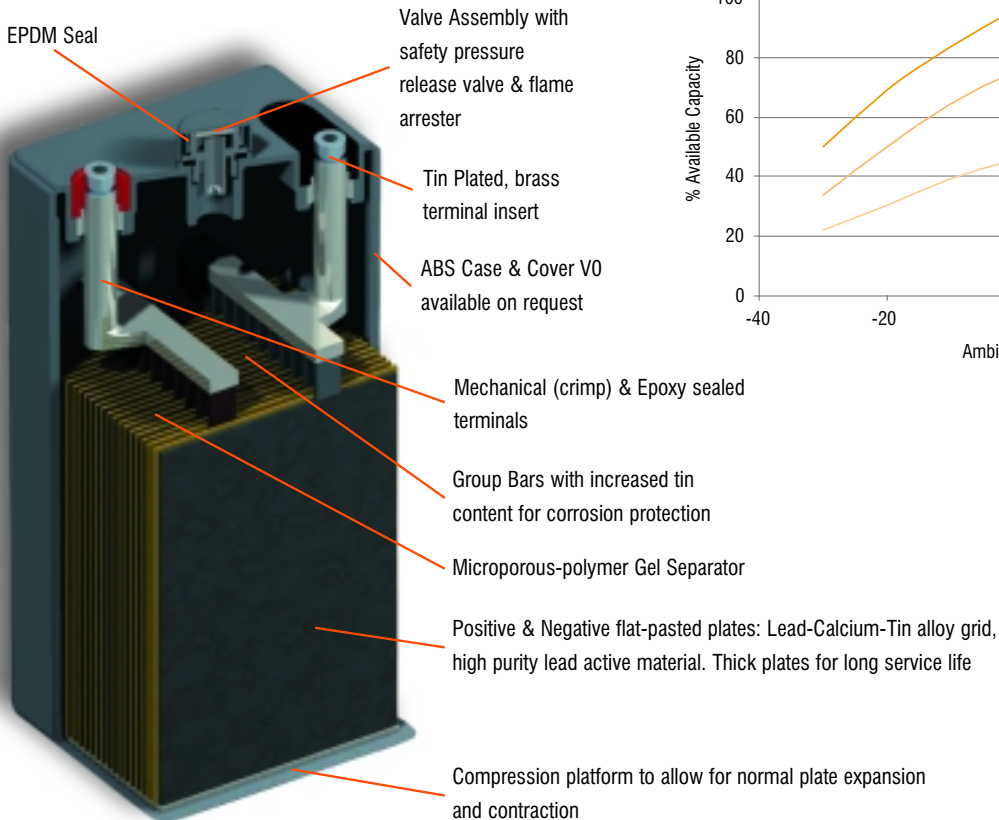
**Self-discharge Characteristics**



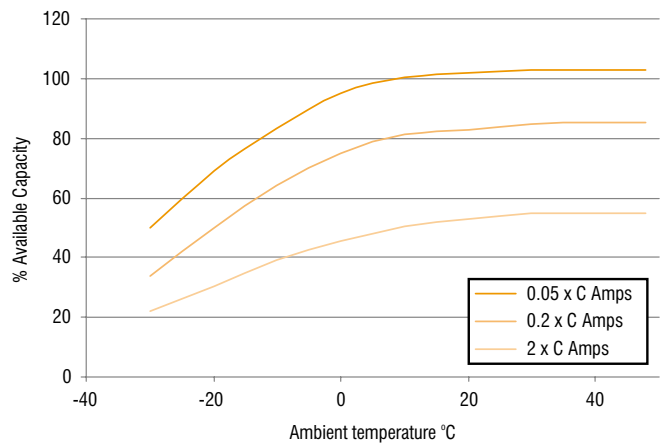
**Battery Cycle Life v.s Depth Of Discharge (DOD)**



## Construction of Sunlight SVT Gel VRLA Battery



**Capacity Vs Ambient Temperature**



	Dimensions (mm) & weight (kg)					No. of Terminals	Internal Resistance mOhms	Maximum Charge Current
	Length	Width	Height	With Cover	Weight			
SVTG-50	161	50	166	NA	4	2	2.10	10
SVTG-100	171	72	205	NA	8	2	2.00	20
SVTG-150	172	102	205	227	11	2	1.50	30
SVTG-200	173	111	329	365	14	2	1.20	40
SVTG-250	173	111	329	365	18	2	0.85	50
SVTG-300	171	151	330	366	21	2	0.70	60
SVTG-375	171	151	330	366	23.5	2	0.50	75
SVTG-400	211	176	329	367	27	2	0.40	80
SVTG-450	223	187	351	373	30	4	0.30	90
SVTG-500	241	172	331	367	32	4	0.30	100
SVTG-575	223	187	351	373	35	4	<0.2	115
SVTG-600	301	175	331	366	38	4	<0.2	120
SVTG-625	241	172	331	366	47	4	<0.2	125
SVTG-750	301	175	331	366	55	4	<0.2	130
SVTG-800	410	175	330	365	57	8	<0.2	160
SVTG-1000	475	175	328	365	63	8	<0.2	200
SVTG-1250	475	175	328	365	78	8	<0.2	250
SVTG-1500	401	351	342	378	100	8	<0.2	300
SVTG-1875	401	351	342	378	125	8	<0.2	375
SVTG-2000	491	351	344	383	132	8	<0.2	400
SVTG-2500	491	351	344	383	175	8	<0.2	500
SVTG-3000	712	353	341	382	210	8	<0.2	600
SVTG-3850	712	353	341	382	261	8	<0.2	770

T y p e

Discharge Time in Hours (Table data shows Ah and Amps)

Type	End V per cell	Discharge Time in Hours (Table data shows Ah and Amps)																				
		24h	20h	12h	10h	8h	6h	5h	4h	3h	2h	1h										
SVTG-50	1.85	51	2.1	53	2.7	48	4.0	47	4.7	46	5.7	43	7.2	41	8.3	39	9.9	37	12.2	32	16.2	24
	1.80	56	2.3	54	2.7	51	4.3	50	5.0	48	6.0	45	7.4	43	8.6	41	10.3	39	13.0	34	17.0	28
	1.75	58	2.4	55	2.7	53	4.4	52	5.2	50	6.3	46	7.7	44	8.8	42	10.6	41	13.7	35	17.6	29
SVTG-100	1.85	109	4.5	107	5.4	100	8.3	98	9.8	94	11.8	87	14.5	83	16.6	79	19.8	76	25.3	66	33.0	52
	1.80	111	4.6	109	5.5	102	8.5	100	10.0	96	12.0	89	15.0	85	17.0	81	20.3	78	26.0	68	34.0	56
	1.75	115	4.8	111	5.6	105	8.8	104	10.4	100	12.5	93	15.5	88	17.6	84	21.0	81	27.0	71	35.5	58
SVTG-150	1.85	163	6.8	159	7.9	148	12.4	145	14.5	139	17.4	132	22.0	126	25.2	120	30.0	114	38.0	100	50.0	76
	1.80	167	7.0	162	8.1	155	12.9	150	15.0	144	18.0	134	22.3	128	25.6	122	30.5	117	39.0	102	51.0	84
	1.75	173	7.2	169	8.5	159	13.3	156	15.6	150	18.8	139	23.2	133	26.6	126	32.0	122	40.0	106	53.0	87
SVTG-200	1.85	215	9.0	212	10.6	196	16.3	189	18.9	181	22.6	172	28.7	166	33.2	158	39.5	150	50.0	132	66.0	99
	1.80	222	9.3	218	10.9	204	17.0	200	20.0	192	24.0	178	29.7	170	34.0	162	40.5	156	52.0	136	68.0	112
	1.75	232	9.7	228	11.4	211	17.6	209	20.9	200	25.0	186	31.0	177	35.4	169	42.3	163	54.3	142	71.0	117
SVTG-250	1.85	267	11.1	256	12.8	243	20.3	236	23.6	226	28.3	215	35.8	206	41.2	197	49.1	188	62.5	165	82.5	124
	1.80	278	11.6	272	13.6	255	21.3	250	25.0	240	30.0	223	37.2	213	42.6	203	50.8	195	65.0	170	85.0	140
	1.75	290	12.1	282	14.1	264	22.0	261	26.1	251	31.4	232	38.7	222	44.4	211	52.8	204	68.0	177	88.5	146
SVTG-300	1.85	324	13.5	315	15.8	296	24.7	283	28.3	271	33.9	258	43.0	246	49.2	235	58.8	225	75.0	198	99.0	148
	1.80	333	13.9	324	16.2	306	25.5	300	30.0	288	36.0	267	44.5	255	51.0	243	60.8	234	78.0	204	102	168
	1.75	347	14.5	336	16.8	317	26.4	313	31.3	300	37.5	279	46.5	266	53.2	254	63.5	244	81.3	213	107	175
SVTG-375	1.85	399	16.6	392	19.6	361	30.1	353	35.3	339	42.4	321	53.6	307	61.4	294	73.4	281	93.6	247	124	185
	1.80	416	17.3	412	20.6	381	31.8	375	37.5	360	45.0	334	55.7	319	63.8	304	76.0	293	98	255	128	210
	1.75	434	18.1	424	21.2	396	33.0	391	39.1	376	47.0	348	58.0	333	66.6	317	79.3	305	102	266	133	219
SVTG-400	1.85	415	17.3	408	20.4	388	32.3	376	37.6	362	45.2	342	57.0	327	65.4	313	78.3	299	99.8	264	132	198
	1.80	444	18.5	432	21.6	407	33.9	400	40.0	384	48.0	356	59.3	340	68.0	324	81.0	312	104	272	136	224
	1.75	463	19.3	451	22.6	421	35.1	417	41.7	401	50.1	371	61.8	355	71.0	338	84.5	326	109	284	142	234
SVTG-450	1.85	474	19.8	452	22.6	434	36.2	424	42.4	407	50.9	387	64.4	370	74.0	353	88.3	335	112	297	149	233
	1.80	500	20.8	488	24.4	459	38.2	450	45.0	432	54.0	401	66.8	383	76.6	365	91.3	351	117	306	153	252
	1.75	521	21.7	507	25.4	474	39.5	469	46.9	451	56.4	418	69.7	399	79.8	380	95.0	366	122	319	160	263
SVTG-500	1.85	520	21.7	502	25.1	486	40.5	472	47.2	452	56.5	431	71.8	413	82.6	393	98.3	370	123	330	165	247
	1.80	555	23.1	541	27.1	512	42.7	500	50.0	480	60.0	445	74.2	425	85.0	405	101	390	130	340	170	280
	1.75	579	24.1	565	28.3	528	44.0	522	52.2	501	62.6	464	77.3	443	88.6	423	106	407	136	355	178	292
SVTG-575	1.85	625	26.0	578	28.9	559	46.6	543	54.3	520	65.0	494	82.3	473	94.6	452	113	429	143	361	180	284
	1.80	633	26.4	609	30.5	578	48.2	570	57.0	547	68.4	507	84.5	485	97	462	116	445	148	388	194	319
	1.75	660	27.5	640	32.0	608	50.7	595	59.5	571	71.4	529	88.2	505	101	482	121	464	155	404	202	333
SVTG-600	1.85	634	26.4	609	30.5	583	48.6	566	56.6	542	67.8	514	85.7	492	98.4	472	118	450	150	360	180	297
	1.80	666	27.8	640	32.0	608	50.7	600	60.0	576	72.0	534	89.0	510	102	486	122	468	156	408	204	336
	1.75	695	29.0	662	33.1	634	52.8	626	62.6	601	75.1	557	92.8	532	106	507	127	488	163	426	213	351
SVTG-625	1.85	660	27.5	638	31.9	608	50.6	590	59.0	565	70.6	535	89.2	513	103	492	123	455	152	375	188	312
	1.80	694	28.9	672	33.6	638	53.2	625	62.5	600	75.0	556	92.7	531	106	506	127	488	163	425	213	350
	1.75	724	30.2	699	35.0	661	55.1	652	65.2	626	78.3	580	97	554	111	528	132	509	170	443	222	365
SVTG-760	1.85	803	33.4	788	39.4	735	61.3	717	71.7	687	85.9	652	109	625	125	598	150	565	188	502	251	395
	1.80	833	34.7	814	40.7	775	64.6	750	75.0	720	90.0	668	111	638	128	608	152	585	195	510	255	420
	1.75	869	36.2	843	42.2	807	67.3	782	78.2	751	93.9	696	116	665	133	634	159	610	203	532	266	438
SVTG-800	1.85	845	35.2	812	40.6	778	64.8	755	75.5	723	90.4	686	114	658	132	623	156	598	199	528	264	415
	1.80	888	37.0	859	43.0	816	68.0	800	80.0	768	96.0	712	119	680	136	648	162	624	208	544	272	448
	1.75	926	38.6	886	44.3	850	70.8	835	83.5	801	100	743	124	709	142	676	169	651	217	568	284	467
SVTG-1000	1.85	1056	44.0	1015	50.8	968	80.7	945	94.5	912	114	864	144	825	165	784	196	740	247	660	330	540
	1.80	1110	46.3	1052	52.6	1020	85.0	1000	100	960	120	890	148	850	170	810	203	780	260	680	340	560
	1.75	1158	48.3	1100	55.0	1051	87.6	1043	104	1002	125	929	155	887	177	845	211	814	271	709	355	584
SVTG-1250	1.85	1320	55.0	1274	63.7	1210	101	1179	118	1136	142	1072	179	1035	207	985	246	926	309	825	413	660
	1.80	1388	57.8	1352	67.6	1278	107	1250	125	1200	150	1113	186	1063	213	1013	253	975	325	850	425	700
	1.75	1448	60.3	1399	70.0	1328	111	1304	130	1252	157	1161	194	1109	222	1056	264	1017	339	887	444	730
SVTG-1500	1.85	1584	66.0	1520	76.0	1452	121	1413	141	1360	170	1289	215	1245	249	1185	296	1121	374	990	495	785
	1.80	1665	69.4	1585	79.3	1536	128	1500	150	1440	180	1335	223	1275	255	1215	304	1170	390	1020	510	840
	1.75	1737	72.4	1607	80.4	1582	132	1565	157	1502	188	1393	232	1330	266	1268	317	1221	407	1064	532	876
SVTG-1875	1.85	1980	82.5	1930	96.5	1876	156	1769	177	1697	212	1607	268	1546	309	1469	367	1398	466	1237	619	940
	1.80	2081	86.7	2010	100.5	1936	161	1875	187	1800	225	1669	278	1594	319	1519	380					

Discharge Watts per Cell @ 20°C (Time in Minutes)

		End V per cell	5 min	10 min	20 min	30 min	40 min	50 min	60 min	90 min	120 min	180 min	240 min
SVTG-50	1.80	127	111	97	86	71	61	59	54	43	32	24	
	1.75	131	114	100	89	74	64	61	56	45	33	25	
SVTG-100	1.80	252	220	193	171	141	122	118	107	86	64	47	
	1.75	262	229	201	179	147	127	123	112	89	67	49	
SVTG-150	1.80	378	329	289	257	212	183	177	161	129	96	71	
	1.75	393	343	301	268	221	191	184	167	134	100	74	
SVTG-200	1.80	504	439	386	343	283	244	236	214	171	129	94	
	1.75	525	458	402	357	295	254	246	223	179	134	98	
SVTG-250	1.80	629	549	482	429	354	305	295	268	214	161	118	
	1.75	656	572	502	446	368	318	307	279	223	167	123	
SVTG-300	1.80	755	659	579	514	424	366	354	321	257	193	141	
	1.75	787	686	603	536	442	382	368	335	268	201	147	
SVTG-375	1.80	944	824	723	643	530	458	442	402	321	241	177	
	1.75	983	858	753	670	552	477	460	419	335	251	184	
SVTG-400	1.80	1007	879	771	686	566	489	471	429	343	257	189	
	1.75	1049	915	804	714	589	509	491	446	357	268	196	
SVTG-450	1.80	1133	988	868	771	636	550	530	482	386	289	212	
	1.75	1180	1030	904	804	663	573	552	502	402	301	221	
SVTG-500	1.80	1259	1098	964	857	707	611	589	536	429	321	236	
	1.75	1311	1144	1004	893	737	636	614	558	446	335	246	
SVTG-575	1.80	1435	1252	1099	977	806	696	672	611	489	366	269	
	1.75	1495	1304	1145	1018	840	725	700	636	509	382	280	
SVTG-600	1.80	1511	1318	1157	1029	849	733	707	643	514	386	283	
	1.75	1574	1373	1205	1071	884	763	737	670	536	402	295	
SVTG-625	1.80	1574	1373	1205	1071	884	763	737	670	536	402	295	
	1.75	1639	1430	1256	1116	921	795	767	698	558	419	307	
SVTG-760	1.80	1888	1647	1446	1286	1061	916	884	804	643	482	354	
	1.75	1967	1716	1507	1339	1105	954	921	837	670	502	368	
SVTG-800	1.80	2014	1757	1543	1371	1131	977	943	857	686	514	377	
	1.75	2098	1830	1607	1428	1178	1018	982	893	714	536	393	
SVTG-1000	1.80	2518	2196	1928	1714	1414	1221	1178	1071	857	643	471	
	1.75	2623	2288	2009	1786	1473	1272	1228	1116	893	670	491	
SVTG-1250	1.80	3147	2745	2411	2143	1768	1527	1473	1339	1071	804	589	
	1.75	3278	2860	2511	2232	1841	1590	1535	1395	1116	837	614	
SVTG-1500	1.80	3777	3294	2893	2571	2121	1832	1768	1607	1286	964	707	
	1.75	3934	3432	3013	2678	2210	1908	1841	1674	1339	1004	737	
SVTG-1875	1.80	4721	4118	3616	3214	2652	2290	2210	2009	1607	1205	884	
	1.75	4917	4290	3767	3348	2762	2385	2302	2093	1674	1256	921	
SVTG-2000	1.80	5035	4393	3857	3428	2828	2443	2357	2143	1714	1286	943	
	1.75	5245	4576	4018	3571	2946	2544	2455	2232	1786	1339	982	
SVTG-2500	1.80	6294	5491	4821	4285	3535	3053	2946	2678	2143	1607	1178	
	1.75	6557	5720	5022	4464	3683	3181	3069	2790	2232	1674	1228	
SVTG-3000	1.80	7553	6589	5785	5143	4243	3664	3535	3214	2571	1928	1414	
	1.75	7868	6863	6026	5357	4419	3817	3683	3348	2678	2009	1473	
SVTG-3850	1.80	9693	8456	7425	6600	5445	4702	4537	4125	3300	2475	1815	
	1.75	10097	8808	7734	6875	5672	4898	4726	4297	3437	2578	1891	



### SUNLIGHT FACTORY

It was established in 1977, as a Zinc - Carbon battery production unit and acquired by GERMANOS in 1991. Since then, following an intensive development plan, it has been transformed to one of the most advanced factories in Europe.

It covers an area of more than 30.000 m<sup>2</sup> in a field of total area 150.000m<sup>2</sup> it employs more than 230 specialized engineers, technicians and workers and it has currently operating the following production and/or assembly lines.

**Quality Assurance:** SUNLIGHT factory has established and maintains a Quality Assurance System according to ISO 9001/AQAP 110 that has been certified by TUV CERT, for primary and secondary self and batteries: Lead-Acid (veated and sealed), nickel-cadmium (veated and sealed), zinc-chlorade, alkaline, lithium, nickel-metal hydride, silver zinc, as well as for batteries charger systems, rectifiers, Ups, inverters, converters, ac-dc power supply systems, generating systems, electrical control panels, low voltage panels, renewable energy and hydride systems.

The Quality Control Department ensures the highest quality and the outmost performance of the final product, while the R&D Dept focuses its activities on the development of new products and improvement of the existing manufacturing procedures.

**Environmental Control:** SUNLIGHT Factory has established and maintains an Environmental Pollution Prevention System according to EN 14001 that has been certified by TUV CERT. Special engineering and expensive machinery ensure absolutely clean working conditions as well as protection of the natural environment.

[www.sunlight.gr](http://www.sunlight.gr)



#### GERMANOS GROUP OF COMPANIES

**Headquarters GERMANOS S.A.:**  
23rd Km. N. R. Athens-Lamia  
145 65 Agios Stefanos-Attica, Greece  
Tel : +30 210 624 2000  
Fax: +30 210 621 6911

**GERMANOS Telecom Romania S.A.:**  
11, Preciziei Boulevard  
Sector 6  
Bucharest, Romania  
Tel : +4021 4077330-2  
Fax: +4021 4077333

**Sunlight Middle East:**  
15 El - Hassan Str. Dokki  
Giza, Egypt  
Tel : +20 2 33 800 59  
Fax: +20 2 33 652 93

**Plant Sunlight Industrial Unit:**  
Neo Olvio  
67 200 Xanthi, Greece  
Tel : +30 25410 95240-2  
Fax: +30 25410 95446

**GERMANOS Telecom Bulgaria S.A.:**  
1715 "Miadost" 4,  
1 Business Park Sofia Str.,  
Block 3, Floor 3, Sofia, Bulgaria  
Tel : +359 2 9769371-8  
Fax: +359 2 9769377

**Sunlight Russia:**  
9-21, Palikhastr.  
103 055 Moscow, Russia  
Tel : +70 95 973 13 09  
Fax: +70 95 973 13 09

**Sunlight Germany:**  
Franz-Liszt-Straße 40  
D-46282 Dorsten, Germany  
Tel: +49 2362 20 23 06  
Fax: +49 2362 20 23 07

**Sunlight France:**  
Tour Framatome - Bfi  
1, Place de la Coupole  
92084 Paris La Defence Cedex, France  
Tel : +33 1 47964606  
Fax: +33 1 47964670

**Sunlight Ukraine SRL:**  
7/10-A Schekavitska Str.  
04071 Kiev, Ukraine  
Tel : +38 044 4635735-6-8  
Fax: +38 044 4635731