

Standby batteries: **Powerfit Longlife L400**

The high security range
for stationary applications.



Sonnenschein:

You can count on our
expertise – worldwide.



The Sonnenschein battery range:

Standby batteries

Traction batteries

Starter batteries

Lithium batteries

With over 80 years experience in the design and manufacture of batteries, Sonnenschein offers innovative technology, continuous product improvement and development, and the highest production standards. This experience provides an excellent basis for any battery application.

Batteries are an essential component in ensuring that the safety and reliability of your electrical equipment is maintained. The selection and implementation of electrical back up in the form of a storage battery is based on reliability, performance, size, and reduced operating and investment costs.

Within the context of these requirements, Sonnenschein has developed a new generation of batteries for electrical back up applications.

Absolutely maintenance free during their whole service life the Powerfit ranges benefits from the many years' experience Sonnenschein has acquired in VRLA (Valve Regulated Lead Acid) batteries and the latest technical developments in the storage of electricity.

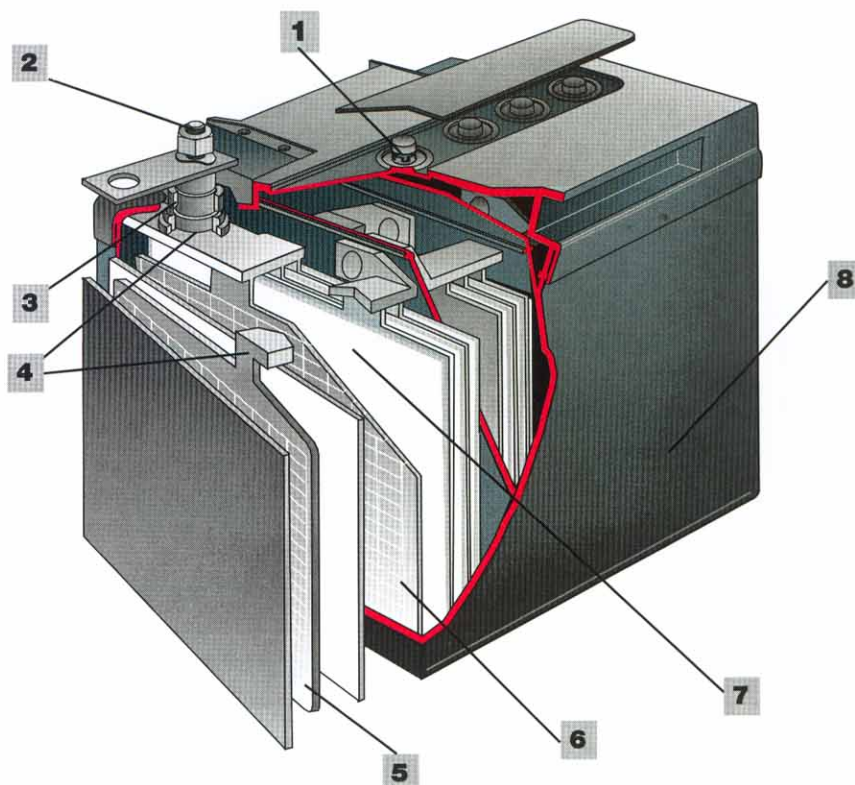
Compact, economical and comprehensive in terms of the products on offer, the new Powerfit series can be used in a wide range of stand-by applications.

THE ADVANTAGES OF THE POWERFIT RANGE

Built on new ISO 9000 certified production lines, the Powerfit batteries offer the following technical advantages:

- New lead/calcium/tin alloy (no antimony or cadmium) to improve performance and durability.
- New design of positive grids to prolong the lifespan of the battery in floating mode.
- New oxide to improve the contact between the grid and the material and thus increase the stored capacities and available power.
- Compressed separator with a porosity of over 95% to reduce internal resistance and optimise rapid recharging.
- Optimisation of the acid/active material ratio for longer lifespan.
- Excellent price/performance ratio in terms of amperes per hour, thus making it extremely competitive.
- Very low self-discharge rate: batteries can be stored up to 11 months at 20 °C.
- Rapid recharge due to very low internal resistance.

- Powerfit batteries from Sonnenschein are sealed, rechargeable VRLA lead-acid batteries with a lead/tin alloy in AGM technology. In contrast to conventional systems the electrolyte is retained in a glass mat with a very fine glass-fibre structure (Absorbed Glass Mat).
- Powerfit batteries are absolutely maintenance-free and are therefore especially economic in use – costly service intervals are eliminated along with separate battery charging rooms and their fittings.
- Due to close plate separation giving a low internal resistance, excellent high current discharge characteristics are achieved. High energy densities make Powerfit batteries compact, powerful energy sources.
- Powerfit batteries not only feature easy handling and high performance, but are also low gassing, reliable under deep discharge conditions and fast charging. Their low self-discharge rate allows storage times of up to eleven months at 20 °C.
- **Containers for S and L ranges can be, on request, in flame retardant material following BS 6336 FVO - IEC 707 FVO - UL94 VO standards.**



Safety

- | | |
|---|---|
| <p>☐ VRLA technology : 99 % of generated gases are recombined, thus minimising the need to service the battery throughout its lifespan.</p> <p>1 Extra reliable safety valve (discharges gases and prevents the intrusion of air) to ensure operational battery safety.</p> <p>2 Direct output terminals with threaded insert and reinforced section for high-intensity discharges.</p> <p>3 Output terminal anti-leak system to ensure operational safety when used in the horizontal or vertical position.</p> <p>4 High current collector with improved grid bar.</p> <p>5 6 Flat anti-corrosion plates.</p> <p>7 Anti-bypass separator to prevent short circuits.</p> <p>8 Fire and mechanical shock-resistant lid/cover assembly. PP talc material significantly reduces gas permeability.</p> | <p>☐ All Powerfitt products are conform to the following standards :
IEC 896 -2 - DIN43534 - NFS 61940.
S and L products are conform to BS6290 standard</p> <p>☐ No restrictions for most air, rail and sea transportation (in accordance to IATA, DGR clause A 67).</p> <p>☐ Safe under deep discharge conditions according to DIN 43539 Part 5.</p> <p>☐ Installation: when installing Powerfit batteries in rooms, cabinets or racks please follow instructions in conformance with VDE 0510 Part 2/Part 7 and NF-C 15-100.</p> <p>☐ Powerfit batteries can be recycled. Sonnenschein will accept your old Powerfit batteries at the end of their service life for recycling.</p> |
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L400

YOUR ENERGY REQUIREMENT

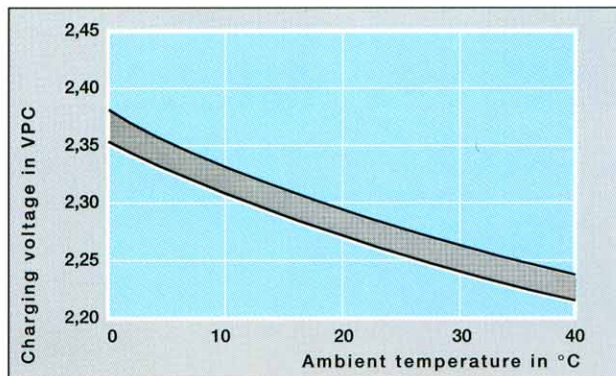
Batteries are an essential component in ensuring the safety and reliability of your electrical equipment is maintained.

In order to provide back-up energy for sensitive installations, you need high-technology batteries which are long-lasting, reliable, compact, and entail low operating and investment costs in order to meet your requirements.

It is within this context of the need for reliability and durability that Sonnenschein has developed a new range of extra longlife batteries for installations requiring a high degree of safety.

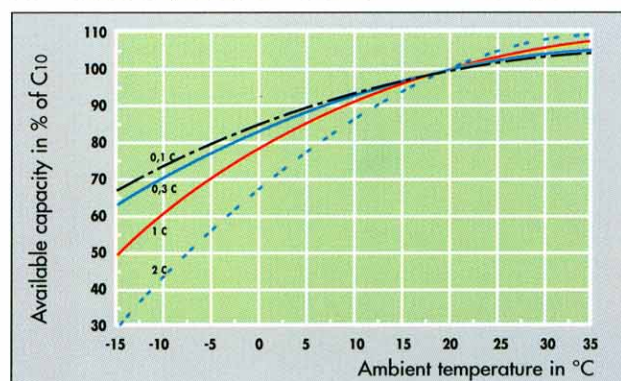
The Powerfit Longlife L 400 Series can be employed in a multitude of applications in the field of energy production and supply, remote control and data processing, industrial energy supply, emergency lighting, UPS and security systems. With an extremely long service life, they are particularly suitable for telecommunication applications.

Floating voltage



For continuous charging we recommend a voltage of 2.27 V/cell at 20 °C. The charging voltage must be compensated to the curve for a continuously different battery ambient temperature.

Available capacity in relation to the temperature

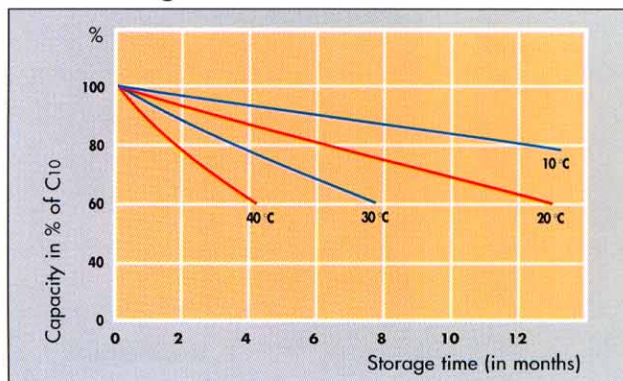


Technical characteristic and data

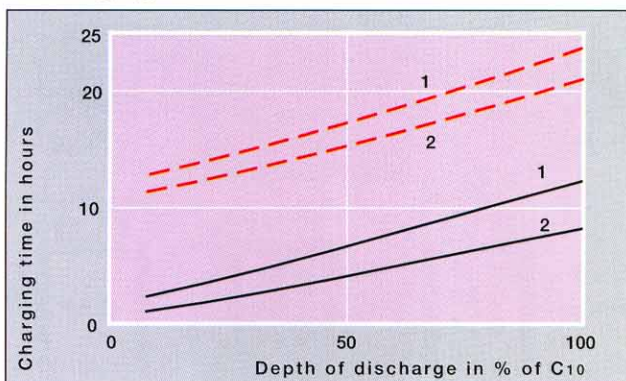
Container Design	Products	Voltage in V	Capacity in Ah at 20°C 10h at 1,8Vpc	Length in mm	Width in mm	Height in mm	Weight in kg	Internal resistance mΩ	Output type
MD 1	L412/15	12	14.0	181	76	167	6,5	14	M 6
MD 4	L412/32	12	31.5	198	168	175	13.5	8.0	M 6
MD 5	L412/42	12	42.0	234	169	190	18.5	7.0	M 8
MD 6	L412/55	12	55.0	272	166	190	22.0	5.8	M 8
MS 8	L412/80	12	80.0	359	172	226	30.0	4.2	M 8
MS 10	L406/100	6	100	232	168	190	20.5	1.8	M 8
MS 13	L406/110	6	112	272	166	190	23.0	1.6	M 8
MS 17	L406/160	6	162	359	171	226	31.5	1.3	M 8
G 20	L402/200	2	205	208	135	282	16.0	0.35	M 12
G 25	L402/250	2	250	208	135	282	18.3	0.28	M 12
G 30	L402/300	2	307	208	201	282	24.2	0.22	2 x M 12
G 35	L402/350	2	359	208	201	282	26.5	0.18	2 x M 12
G 40	L402/400	2	400	208	201	282	28.8	0.15	2 x M 12
G 55	L402/450	2	450	208	270	282	32.6	0.14	2 x M 12
G 55	L402/500	2	500	208	270	282	35.0	0.125	2 x M 12
G 55	L402/550	2	550	208	270	282	37.3	0.11	2 x M 12

Connection type faston or male insert

Self-discharge characteristics



Recharging time



1: 0.1 C10

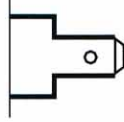
2: 0.2 C10

--- State of charge 100% — State of charge 90%

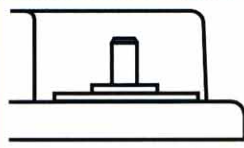
Charging time according to depth of discharge - constant voltage charging 2,27 Vpc at 20°C with current limitation.



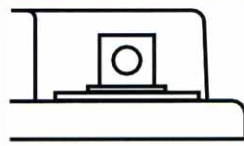
Dimensions and container designs



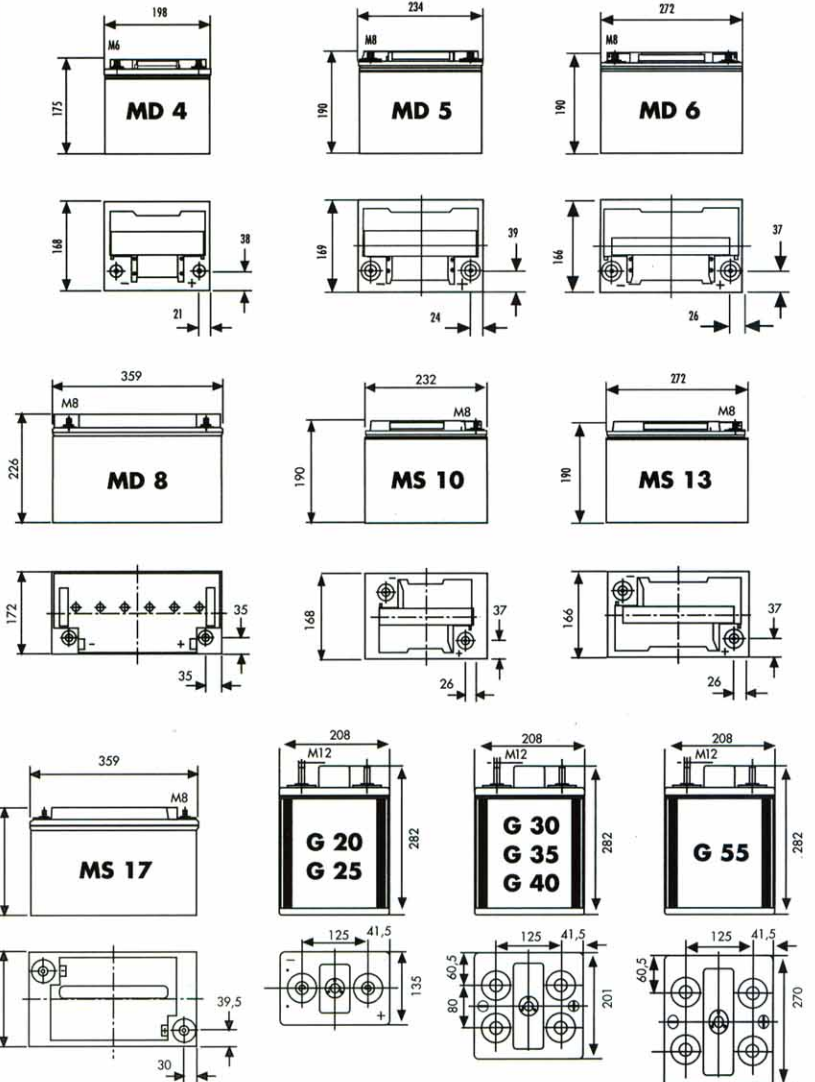
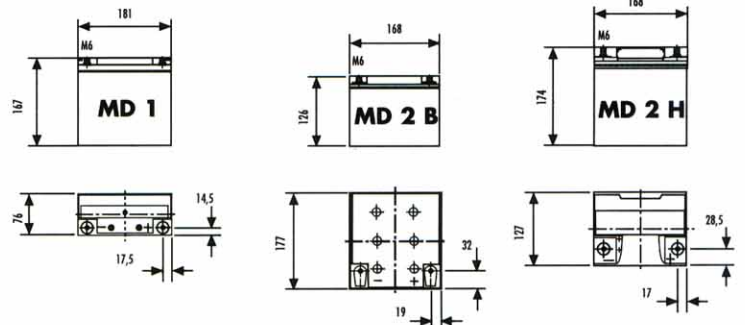
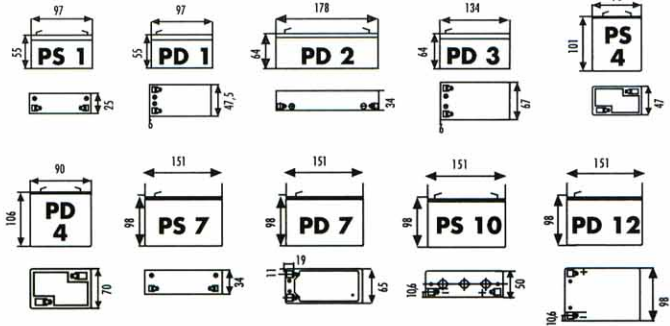
Faston



Male insert



G terminal



Sonnenschein services

To ensure that all POWERFIT batteries are installed properly, a dedicated Sonnenschein customer care department has been set up:

- Upstream, we integrate both your technical and commercial requirements in terms of space and safety. This is the job of our specialised teams, who help you design the technical solution best suited to your requirements and the best battery to install depending on your specifications.
- Downstream, we install your battery so that it is ready to use. You will benefit from the knowledge and experience of our technicians, qualified in on-site battery installation.



- Battery calculation
- Installation study
- Technical advice
- Creation of wiring diagrams and assembly drawings



- Wooden or metallic racks
- Antiseismic rack
- Power cabinet
- Circuit breaker, connection box
- Connection, wiring



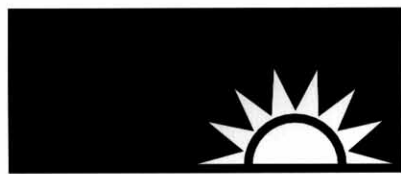
- Replacing used batteries
- On-site assembly
- Maintenance contract
- Inspection visit



- Battery monitoring/CB 12 - CB 40
- Operating and data recording software
- Measuring point and wiring installation
- Analysis of results



- "Know the battery" training course
 - Designing and defining an electrical back-up system
 - Installing a battery
 - Establishing maintenance intervals
 - Operating a storage battery



Sonnenschein

Powerfit Longlife L 400

Rapid determination tables
constant current (A) at 20°C.

End of discharge voltage 1.95 V/Cell							
Products	15mn	30mn	1h	3h	5h	8h	10h
L412/15	15	10,6	6,5	2,8	1,8	1,3	1,15
L412/32	33	23,0	14,2	6,0	4,0	2,7	2,4
L412/42	46	32	19	8	5,4	3,6	3,2
L412/55	52	35,5	23	10,4	6,6	4,7	4,2
L412/80	69	51,0	33,0	15,1	9,6	7,0	6,1
L406/100	102	73	46	20,5	12,9	8,8	7,7
L406/110	111	80	50,0	23,0	14,5	9,9	8,6
L406/160	158	118	74,5	32,0	21,8	14,5	12,7
L402/200	120	96	70	38	26,2	18	15
L402/250	157	125	90	46	30,2	20,7	17,1
L402/300	180	144	105	57	39,3	27	22,5
L402/350	210	168	123	66,5	45,9	31,5	26,2
L402/400	232	188	140	73	48,4	33,2	27,4
L402/450	334	260	175	84,6	57,6	39,7	33,1
L402/500	360	280	194	94,0	64,0	44,1	36,8
L402/550	384	306	212	103	70,4	48,5	40,5

End of discharge voltage 1.90 V/Cell							
Products	15mn	30mn	1h	3h	5h	8h	10h
L412/15	19	12,4	7,7	3,3	2,3	1,5	1,25
L412/32	41	27,0	17	7,2	5,0	3,2	2,8
L412/42	57	37	23,0	10,2	6,7	4,4	3,8
L412/55	65	44	27,5	12,7	8,0	5,6	4,9
L412/80	87	61,5	39,2	18,4	12,0	8,3	7,3
L406/100	129	72	54	25,0	15,9	10,9	9,2
L406/110	141	94	59,0	28,0	17,8	11,8	10,3
L406/160	198	139	84,5	35,6	24,2	16,7	14,7
L402/200	184	136	94	46,5	31,8	21,8	17,9
L402/250	230	172	118	57	38,8	26,2	21,5
L402/300	276	204	141	70	47,7	32,5	26,8
L402/350	322	238	165	81,4	55,7	38	31,3
L402/400	368	272	186	90	60,8	41,5	34,4
L402/450	462	334	219	104	69,5	47,3	39,3
L402/500	500	368	240	115	77,2	52,6	43,5
L402/550	539	402	263	127	84,9	57,9	47,9

End of discharge voltage 1.85 V/Cell							
Products	15mn	30mn	1h	3h	5h	8h	10h
L412/15	22	14,1	8,6	3,7	2,4	1,6	1,33
L412/32	48	30,0	18,8	8,5	5,5	3,5	3,0
L412/42	68	41,5	26,0	11,5	7,4	4,8	4,0
L412/55	76	49	31	13,8	9,1	6,2	5,2
L412/80	103	69,5	44,0	19,8	13,2	9,0	7,616
L406/100	155	97	61	27,2	17,7	11,6	9,6
L406/110	169	106	66,5	30,5	19,8	13,0	10,8
L406/160	232	156	96	38,9	27,0	17,9	15,5
L402/200	250	174	112	52	34,8	23,5	19,3
L402/250	302	210	137	64	42,5	28,4	23,5
L402/300	375	261	168	78	52,2	35,2	28,9
L402/350	437	305	196	91	60,9	41,1	33,8
L402/400	472	336	220	101	67	45,2	37,6
L402/450	575	401	255	116	77,0	52,1	43,1
L402/500	620	440	278	128	85	57,9	47,8
L402/550	665	482	307	141	94,1	63,7	52,7

End of discharge voltage 1.80 V/Cell							
Products	15mn	30mn	1h	3h	5h	8h	10h
L412/15	24	15,0	9,3	4,1	2,5	1,67	1,4
L412/32	54	33,0	20,2	9,1	5,9	3,7	3,15
L412/42	76	46	27,5	12,4	7,7	4,9	4,2
L412/55	83	53	33	14,3	9,6	6,5	5,5
L412/80	115	75,5	47,0	20,5	13,8	9,3	8,0
L406/100	172	106	65	29,3	18,6	12,1	10,0
L406/110	187	115	71,0	32,8	20,8	13,5	11,2
L406/160	258	170	102	42,1	28,4	18,8	16,2
L402/200	292	196	123	55,5	36,9	24,9	20,5
L402/250	362	247	155	68	45	30,2	25
L402/300	438	294	185	83,2	55,3	37,3	30,75
L402/350	511	343	215	97	64,6	43,6	35,9
L402/400	564	396	248	110	72	48,5	40
L402/450	663	447	279	122	80,7	54,4	45,0
L402/500	720	495	308	135	89,7	60,3	50,0
L402/550	775	542	338	149	98,7	66,4	55,0

End of discharge voltage 1.75 V/Cell							
Products	15mn	30mn	1h	3h	5h	8h	10h
L412/15	26	15,8	9,5	4,5	2,6	1,72	1,45
L412/32	58	34,5	20,5	9,2	6,0	3,8	3,25
L412/42	81	48	28,5	12,6	7,9	5,1	4,3
L412/55	87	55	34,5	14,6	9,8	6,6	5,6
L412/80	122	78,5	48,8	21,0	14,2	9,5	8,2
L406/100	185	110	67	30,0	19,1	12,4	10,3
L406/110	202	120	73,5	33,6	21,4	13,8	11,5
L406/160	275	175	105	43,5	29,2	19,5	16,6
L402/200	324	214	130	57	37,8	25,1	20,7
L402/250	402	267	162	69	46,2	30,7	25,2
L402/300	486	321	195	85	56,7	37,6	31
L402/350	567	374	228	100	66	43,9	36,2
L402/400	632	424	258	112	73,2	49	40,3
L402/450	735	483	292	125	82,0	54,9	45,4
L402/500	800	535	324	138	91,1	61,0	50,4
L402/550	870	586	355	152	100	67,0	55,4

End of discharge voltage 1.70 V/Cell							
Products	15mn	30mn	1h	3h	5h	8h	10h
L412/15	27	16,3	9,7	4,4	2,7	1,77	1,50
L412/32	60	35,5	20,8	9,3	6,1	3,9	3,3
L412/42	84	50	29	12,7	8,0	5,2	4,4
L412/55	91	56,5	35	14,9	10,0	6,7	5,7
L412/80	129	80,0	49,6	21,7	14,5	9,7	8,3
L406/100	193	114	68	30,4	19,5	12,6	10,4
L406/110	211	124	74,5	34,1	21,8	14,1	11,7
L406/160	288	179	108	44,5	29,8	19,8	16,9
L402/200	356	228	136	58	38,6	25,3	20,9
L402/250	435	282	168	70	46,9	31,3	25,4
L402/300	534	342	204	87	58	38	31,3
L402/350	623	399	238	101	67,5	44,3	36,6
L402/400	684	448	268	114	74,4	49,5	40,6
L402/450	785	505	301	127,3	83,0	55,4	45,6
L402/500	860	558	334	141	92,2	61,6	50,7
L402/550	930	611	366	155	101	67,8	55,8

Powerfit Longlife L 400

Rapid determination tables

constant power (in W/monoblocs) at 20°C.

End of discharge voltage 1.85 V/Cell								
Products	5mn	10mn	15mn	20mn	30mn	45mn	1h	2h
L412/15	442	321	254	210	164	127	106	64
L412/32	955	696	555	468	355	271	222	136
L412/42	1335	975	780	650	500	376	310	185
L412/55	1383	1083	872	745	576	445	369	223
L412/80	1748	1416	1188	1026	817	636	523	323
L406/100	1405	1087	891	745	574	440	361	218
L406/110	1530	1184	971	811	625	479	393	244
L406/160	1853	1544	1332	1158	917	705	569	328
L402/200	650	550	465	407	327	258	214	131
L402/250	795	673	575	500	403	393	265	160
L402/300	975	825	695	610	491	384	321	196
L402/350	1140	965	810	710	575	447	375	229
L402/400	1210	1030	900	775	645	502	421	254
L402/450	1440	1215	1045	920	742	577	477	296
L402/500	1515	1290	1115	992	810	632	524	326
L402/550	1595	1370	1190	1065	874	690	575	360

End of discharge voltage 1.80 V/Cell								
Products	5mn	10mn	15mn	20mn	30mn	45mn	1h	2h
L412/15	514	363	280	230	177	137	113	67
L412/32	1114	796	618	511	385	289	237	144
L412/42	1560	1115	865	710	540	403	327	195
L412/55	1599	1208	953	794	611	472	389	234
L412/80	2040	1606	1321	1121	874	674	551	333
L406/100	1654	1246	989	818	617	464	382	226
L406/110	1802	1357	1077	891	672	505	416	253
L406/160	2171	1756	1477	1264	984	747	600	347
L402/200	745	620	525	453	361	281	231	140
L402/250	920	765	650	562	448	348	285	172
L402/300	1120	930	785	680	541	421	346	210
L402/350	1305	1085	915	795	630	491	404	245
L402/400	1420	1185	1010	890	720	553	452	272
L402/450	1715	1410	1195	1040	823	630	518	318
L402/500	1815	1505	1285	1125	900	693	570	350
L402/550	1915	1580	1370	1210	977	759	626	385

End of discharge voltage 1.75 V/Cell								
Products	5mn	10mn	15mn	20mn	30mn	45mn	1h	2h
L412/15	553	385	293	241	184	141	116	69
L412/32	1206	847	655	537	400	296	241	146
L412/42	1690	1185	915	750	560	412	335	197
L412/55	1771	1294	1000	835	637	492	402	242
L412/80	2300	1729	1387	1169	908	693	570	340
L406/100	1831	1337	1050	861	641	482	396	233
L406/110	1995	1456	1144	938	698	525	431	261
L406/160	2432	1911	1563	1332	1022	773	624	357
L402/200	850	685	570	493	391	300	242	144
L402/250	1040	852	713	612	485	372	300	178
L402/300	1275	1030	860	740	587	450	363	216
L402/350	1490	1200	1005	865	685	525	424	252
L402/400	1595	1330	1120	970	770	558	476	282
L402/450	1965	1590	1325	1145	894	677	550	327
L402/500	2095	1700	1430	1240	977	743	605	361
L402/550	2210	1815	1545	1340	1060	813	664	397

End of discharge voltage 1.70 V/Cell								
Products	5mn	10mn	15mn	20mn	30mn	45mn	1h	2h
L412/15	585	400	301	248	189	143	118	70
L412/32	1284	884	677	555	410	303	245	147
L412/42	1795	1240	950	775	575	420	340	198
L412/55	1897	1332	1022	854	647	498	407	244
L412/80	2560	1824	1444	1207	922	703	580	345
L406/100	1947	1392	1087	885	657	487	399	235
L406/110	2121	1516	1184	964	716	531	435	263
L406/160	2673	2017	1621	1361	1032	782	633	363
L402/200	930	745	625	530	411	312	250	147
L402/250	1140	920	765	657	510	387	312	181
L402/300	1395	1120	935	795	616	468	375	220
L402/350	1630	1305	1090	930	720	546	438	257
L402/400	1775	1445	1200	1045	810	611	495	287
L402/450	2140	1690	1395	1200	925	695	562	331
L402/500	2275	1820	1510	1300	1014	764	618	364
L402/550	2425	1955	1640	1420	1110	840	680	400

End of discharge voltage 1.65 V/Cell								
Products	5mn	10mn	15mn	20mn	30mn	45mn	1h	2h
L412/15	607	409	307	254	193	145	119	71
L412/32	1328	907	692	562	416	305	247	148
L412/42	1860	1270	965	790	585	423	343	199
L412/55	1963	1369	1048	869	654	501	410	246
L412/80	2774	1919	1482	1226	933	709	585	349
L406/100	2021	1428	1105	903	666	491	401	237
L406/110	2201	1556	1204	984	725	535	437	265
L406/160	2876	2113	1670	1380	1042	787	638	365
L402/200	1005	790	645	553	423	317	257	149
L402/250	1220	975	800	680	525	393	317	184
L402/300	1505	1185	970	830	635	475	386	223
L402/350	1755	1385	1130	970	740	554	450	260
L402/400	1900	1520	1250	1065	830	620	503	291
L402/450	2265	1770	1445	1225	944	707	570	333
L402/500	2425	1925	1585	1350	1038	777	627	367
L402/550	2590	2070	1730	1480	1140	855	690	403

End of discharge voltage 1.60 V/Cell								
Products	5mn	10mn	15mn	20mn	30mn	45mn	1h	2h
L412/15	617	416	310	257	195	147	120	71
L412/32	1354	921	700	570	422	307	248	148
L412/42	1895	1290	980	800	590	425	345	200
L412/55	2076	1408	1070	884	661	504	413	248
L412/80	2869	1967	1510	1235	941	713	589	352
L406/100	2082	1453	1120	910	671	495	403	238
L406/110	2268	1583	1220	991	731	539	439	266
L406/160	2982	2171	1700	1390	1052	791	642	367
L402/200	1035	810	670	563	432	320	259	150
L402/250	1255	995	825	695	535	397	319	186
L402/300	1550	1220	1005	845	648	480	388	225
L402/350	1810	1425	1175	985	756	560	453	262
L402/400	1930	1535	1270	1085	835	625	506	295
L402/450	2355	1815	1490	1255	960	717	577	335
L402/500	2525	1970	1325	1375	1055	789	635	369
L402/550	2690	2120	1760	1505	1115	868	699	406

These tables indicate the current (in Amperes) or power (in Watts/monoblock batteries) which can be released at a temperature of 20°C by cells or monoblock batteries over the given ranges and at various voltages. The technical data in these tables is general and may vary depending on the state of the battery.



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