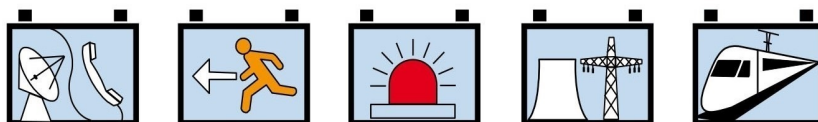


Guarantee

Sealed NiCd - Low Maintenance
PT1.2SPL Pocket plate Range
10-1200Ah



**»Premium quality for
uninterrupted communication«**



www.PlatinIran.com



Sealed NiCd - Low Maintenance PT1.2SPL Pocket plate Range 10-1200Ah

This series of rechargeable battery is specially designed and developed for various operation environment conditions. Which not only has the characteristic of traditional batteries, but also the advantage of maintenance ultra-low. It is especially applied to electric power, telecommunication, railway, metallurgy, mining, lighting, UPS power supply and other devices as standby power supply, diesel engine and direct motor as starting power supply, and transportation tools as direct power supply.

Low maintenance

The rechargeable battery adopts "valve-regulated vent plug technology", therefore, the water consumption is low, the electrolyte is rich.

Within service life, the battery top up time up to 3~5 years due to NILE excellent valve-regulated.

High reliability

The positive and the negative plates of the battery adopt pocket type plates and pasted plates of high mechanical strength, and the container adopts semi-transparent engineering plastic materials of anti-impact and anti-aging. The container and the lid are welded together by intelligent heat welding machine, which is assuring the sealed structure reliability of battery.

The battery has the capability of over-charge, over-discharge and short circuit resistance, which can be installed on the present electric power systems of the customers.

High performance

The battery adopts the optimized design, which can produce high performance battery, and can be applied under the temperature of -50°C~70°C(58°F~ 158°F).

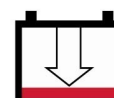
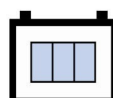
The service life can be more than 20 years according to the recommended maintenance and operation methods.

Applications

Valve-regulated vent plug with low pressure and fire prevention is installed on the battery. If its internal pressure is beyond the safety value, the hydrogen and the oxygen not combined by the negative pole are released through the valve of valve-regulated vent plug and the normal operating pressure is 0.2 bar; when the pressure falls below the releasing pressure, the valve of valve-regulated vent plug will re-close to prevent air entering, avoiding carbonization of the electrolyte.

High float-charge efficiency

The battery adopts high performance positive and negative active materials, improving the charging efficiency of positive and negative electrodes, reducing the float-charge voltage of the battery, under the lower float charge voltage; The consumes capacity of the battery will be highly recovered. After being float charged for 16h by 1.41V/cell ± 0.01 V/cell, the battery can be discharged by 80% of the rated capacity.



Protective cover

- To prevent external short-circuits
- In line with EN 50272-2 (safety) with ip2 level

Plate group bus

- Connects the plate tabs with the terminal post.
- Plate tabs and terminal post are projection-welded to the plate group bus.

Plate

Horizontal pockets of double-perforated steel strips.

Cell container

Material: translucent/transparent polypropylene

Flame-arresting vents

Material: polypropylene.

Plate tab

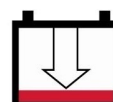
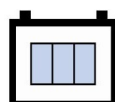
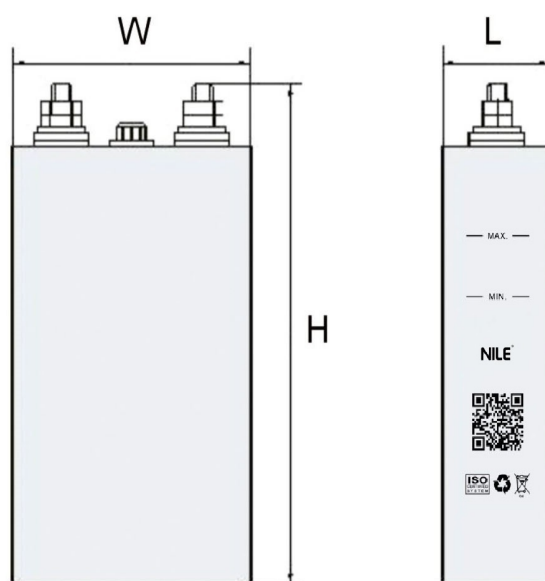
Spot-welded both to the plate side-frames and to the upper edge of the pocket plate.

Separating grids

- These separate the plates and insulate the plate frames from each other.
- The grids allow free circulation of electrolyte between the plates.

Plate frame

Seals the plate pockets and serves as a current collector.



Battery Charging

It is recommended to use Constant Voltage method of charging for Nickel Cadmium Batteries, usually with current limitation to C/5 or C/10. Charging voltages must be regularly checked. To optimize the battery performance, it is necessary to ensure that the voltage is kept within the following limits:

Batteries can be charged in:

- ◆ **constant voltage mode with load connected**
- or
- ◆ **constant current or declining current mode when load is isolated.**

High rate or over charge will not damage the battery.

Minimum float charging current: 2 mA per Ah.

◆ Constant voltage mode:

For continuous parallel operation:

- Float voltage: 1.40 - 1.45 V/cell for PT1.2SPL, PT1.2SPM & PT1.2SPH
- Boost Voltage:
 - PT1.2SPL : 1.60 - 1.70 V/cell
 - PT1.2SPM : 1.60 - 1.65 V/cell
 - PT1.2SPH : 1.60 - 1.65 V/cell

A higher voltage will reduce the charge duration and increase the efficiency of recharging but may increase water consumption.

Single stage charging (without boost):

PT1.2SPL : 1.47 - 1.50 V/cell
PT1.2SPM : 1.46 - 1.49 V/cell
PT1.2SPH : 1.45 - 1.48 V/cell

For starting application:

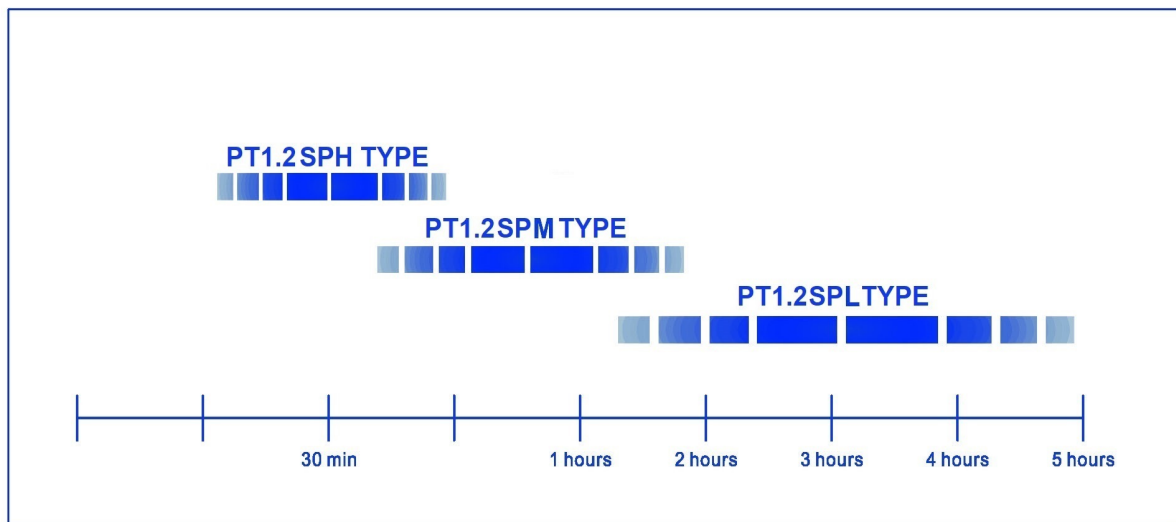
- Recommended charging voltage. 1.50 - 1.55 V/cell.

◆ Constant current mode:

- Normal charging: 0.2 C5 A for 8 hours
- Recommended for quick charging: 0.4 C5 A for 2.5 hours followed by 0.2 C5 A for 2.5 hours

Recommended Type Selection

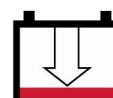
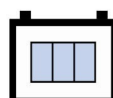
According to backup time required by application:



Initial Charging

The whole charge should preferably be carried out at constant current. The charging time is inversely proportional to the current which is set by the current limit of the charging equipment.

Recommended rates for the first charging: □ 0.2 C5A for 10 hours □ 0.1 C5A for 20 hours

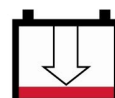
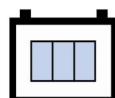


NiCd Pocket Plate PT1.2SPL Range Electrical Specifications & Dimensions

Model	Nominal Voltage (V)	Capacity (C5 Ah)	Dimensions (mm/inch)						Weight (kg/lb.)				Terminal	Cell Case Material
			Length		Width		Height		Without Electrolyte		With Electrolyte			
PT1.2SPL10	1.2	10	40	1.6	85	3.3	150	5.9	0.7	1.5	1.0	2.2	M8	PP
PT1.2SPL20	1.2	20	55	2.2	134	5.3	270	10.6	1.1	2.4	1.8	4.0	M10	PP
PT1.2SPL30	1.2	30	55	2.2	134	5.3	270	10.6	1.5	3.3	2.2	4.8	M10	PP
PT1.2SPL40	1.2	40	55	2.2	134	5.3	270	10.6	1.8	4.0	2.6	5.7	M10	PP
PT1.2SPL50	1.2	50	60	2.4	140	5.5	270	10.6	2.4	5.3	3.2	7.1	M10	PP
PT1.2SPL60	1.2	60	60	2.4	140	5.5	270	10.6	2.8	6.2	3.8	8.4	M10	PP
PT1.2SPL70	1.2	70	70	2.8	140	5.5	295	11.6	2.9	6.4	4.1	9.0	M10	PP
PT1.2SPL80	1.2	80	70	2.8	140	5.5	295	11.6	3.4	7.5	4.6	10.1	M10	PP
PT1.2SPL90	1.2	90	80	3.1	140	5.5	365	14.4	4.2	9.3	6.0	13.2	M10	PP
PT1.2SPL100	1.2	100	80	3.2	140	5.5	365	14.4	4.5	9.9	6.2	13.7	M10	PP
PT1.2SPL120	1.2	120	80	3.2	140	5.5	365	14.4	5.0	11.0	6.5	14.3	M10	PP
PT1.2SPL150	1.2	150	105	4.1	165	6.5	345	13.6	6.9	15.2	9.5	20.9	M20	PP
PT1.2SPL200	1.2	200	105	4.1	166	6.5	345	13.6	7.8	17.2	10.0	22.0	M20	PP
PT1.2SPL250	1.2	250	165	6.5	167	6.6	345	13.6	10.2	22.5	14.2	31.3	M20	PP
PT1.2SPL300	1.2	300	140	5.5	280	11.0	450	17.7	13.8	30.4	21.0	46.3	2 x M16	PP
PT1.2SPL350	1.2	350	140	5.5	280	11.0	450	17.7	15.0	33.1	22.0	48.5	2 x M16	PP
PT1.2SPL400	1.2	400	140	5.5	280	11.0	450	17.7	15.8	34.8	22.8	50.3	2 x M16	PP
PT1.2SPL500	1.2	500	140	5.5	280	11.0	490	19.3	16.8	37.0	24.0	52.9	2 x M20	PP
PT1.2SPL600	1.2	600	175	6.9	290	11.4	500	19.7	27.0	59.5	37.0	81.5	2 x M20	ABS
PT1.2SPL700	1.2	700	175	6.9	290	11.4	500	19.7	29.0	63.9	39.0	86.0	2 x M20	ABS
PT1.2SPL800	1.2	800	186	7.3	398	15.7	565	22.2	39.0	86.0	58.0	128	3 x M20	ABS
PT1.2SPL900	1.2	900	186	7.3	398	15.7	565	22.3	41.0	90.4	60.0	132	3 x M20	ABS
PT1.2SPL1000	1.2	1000	186	7.3	398	15.7	565	22.3	44.0	97.0	61.0	134	3 x M20	ABS
PT1.2SPL1100	1.2	1100	186	7.3	398	15.7	565	22.4	45.0	99.2	62.0	137	3 x M20	ABS
PT1.2SPL1200	1.2	1200	186	7.3	398	15.7	565	22.4	46.0	101	63.0	139	3 x M20	ABS

NILE PT1.2SPL batteries fulfil all requirements specified by IEC publication 60623.

Transparent case optional.



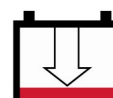
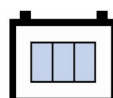
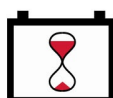
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C ±5°C(+68°F ±9°F)

Final voltage: 1.14 V/cell

Cell Type	Capacity (C5 Ah)	Discharge Time in Hours							Discharge Time in minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
PT1.2SPL10	10	1.00	1.23	1.91	2.99	3.86	4.42	5.10	5.61	6.53	7.56	8.19	9.14	11.0	14.6	15.5	18.2	18.8
PT1.2SPL20	20	1.98	2.42	3.64	5.45	7.14	8.30	10.2	11.2	13.1	15.1	16.7	17.6	20.2	29.0	33.5	44.0	50.3
PT1.2SPL30	30	2.97	3.64	5.45	8.18	10.7	12.4	15.3	16.8	19.6	22.7	25.1	26.5	30.2	43.4	50.3	65.8	75.4
PT1.2SPL40	40	3.96	4.85	7.27	10.9	14.3	16.6	20.4	22.4	26.1	30.2	33.4	35.3	40.3	57.9	67.0	87.8	101
PT1.2SPL50	50	4.95	6.06	9.09	13.6	17.9	20.7	25.5	28.1	32.7	37.8	41.8	44.1	50.4	72.3	83.8	110	126
PT1.2SPL60	60	5.94	7.27	10.9	16.3	21.4	24.9	30.6	33.7	39.2	45.3	47.6	54.6	58.8	81.1	89.8	115	130
PT1.2SPL70	70	6.79	8.30	12.6	18.7	24.3	28.1	32.8	36.1	41.4	48.5	50.0	57.3	61.7	85.2	94.3	121	136
PT1.2SPL80	80	7.92	9.70	14.5	21.0	26.5	30.5	35.9	39.5	45.7	50.4	53.8	60.5	70.6	91.1	100	124	137
PT1.2SPL90	90	8.91	10.9	16.4	23.6	29.9	34.3	40.4	44.4	51.4	56.7	60.5	68.0	79.4	102	112	139	154
PT1.2SPL100	100	9.73	11.8	18.0	26.6	34.7	40.2	46.9	51.6	59.2	69.3	71.4	81.9	88.2	121	135	173	195
PT1.2SPL120	120	11.9	14.5	21.8	31.5	39.8	45.7	53.9	59.2	68.5	75.6	80.6	90.9	106	137	149	185	206
PT1.2SPL150	150	14.8	18.2	27.3	39.4	49.7	57.2	67.3	74.1	85.7	94.5	101	114	133	171	187	232	258
PT1.2SPL200	200	19.8	24.2	36.4	52.5	66.3	76.2	89.8	98.7	115	126	134	151	176	227	250	309	343
PT1.2SPL250	250	24.8	30.3	45.5	65.7	82.9	95.5	112	123	143	158	168	189	221	284	312	387	429
PT1.2SPL300	300	29.7	36.4	54.5	78.8	100	114	135	148	171	189	202	227	265	341	374	464	515
PT1.2SPL350	350	34.7	42.4	63.6	92.0	116	133	157	173	200	221	236	265	309	398	437	541	600
PT1.2SPL400	400	39.6	48.5	72.7	105	133	152	180	198	228	252	269	303	353	454	499	618	686
PT1.2SPL500	500	49.5	60.6	90.9	132	166	191	224	246	286	315	336	378	441	568	623	773	858
PT1.2SPL600	600	59.4	72.7	109	158	199	228	269	296	343	378	403	454	529	683	749	928	1029
PT1.2SPL700	700	69.3	84.8	127	184	232	267	314	346	400	441	470	529	617	796	873	1082	1201
PT1.2SPL800	800	79.1	97.0	145	210	265	305	359	395	457	504	537	605	705	910	998	1237	1372
PT1.2SPL900	900	89.1	109	164	237	299	342	404	444	514	567	605	680	794	1024	1122	1391	1544
PT1.2SPL1000	1000	99.0	121	182	262	332	381	449	494	571	630	672	756	882	1138	1247	1546	1716
PT1.2SPL1100	1100	109	133	200	289	365	419	494	543	628	693	739	832	970	1251	1371	1701	1887
PT1.2SPL1200	1200	119	145	218	315	398	457	539	592	685	756	806	907	1058	1365	1496	1855	2059



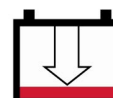
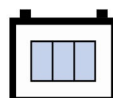
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C ±5°C(+68°F ±9°F)

Final voltage: 1.10 V/cell

Cell Type	Capacity (C5 Ah)	Discharge Time in Hours							Discharge Time in minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
PT1.2SPL10	10	1.01	1.25	1.97	3.11	4.26	4.98	5.86	6.33	7.55	8.57	9.29	10.3	12.1	16.2	17.7	19.7	20.3
PT1.2SPL20	20	2.02	2.50	3.87	5.92	7.98	9.55	11.8	12.7	15.5	17.4	18.7	21.4	25.7	32.9	37.8	49.4	56.2
PT1.2SPL30	30	3.03	3.75	5.82	8.89	12.0	14.3	17.6	19.0	23.3	26.2	28.2	32.1	42.6	49.5	56.7	74.2	84.4
PT1.2SPL40	40	4.04	5.00	7.76	11.8	16.0	19.1	23.4	25.3	31.0	34.9	37.5	42.8	51.4	65.9	75.6	98.8	112
PT1.2SPL50	50	5.05	6.25	9.7	14.8	20.0	23.9	29.3	31.7	38.7	43.6	46.9	53.6	64.2	82.4	94.5	124	140
PT1.2SPL60	60	6.06	7.50	11.6	17.8	23.9	28.6	35.2	38.0	46.5	52.3	56.3	64.3	70.1	90.7	104	134	149
PT1.2SPL70	70	7.00	8.66	13.5	20.7	27.6	32.5	39.6	42.8	50.0	55.7	57.1	64.3	77.1	97.1	109	136	152
PT1.2SPL80	80	8.08	10.0	15.5	23.1	30.7	35.6	43.6	47.1	53.9	58.8	65.3	73.4	78.3	104	113	138	151
PT1.2SPL90	90	9.09	11.3	17.4	26.0	34.5	40.0	49.1	53.0	60.6	66.1	73.4	82.6	88.1	117	128	156	170
PT1.2SPL100	100	10.0	12.4	19.2	29.7	39.4	46.5	56.6	61.1	71.4	79.6	81.6	91.8	110	138	155	194	218
PT1.2SPL120	120	12.0	14.9	23.0	35.6	47.3	55.8	67.9	73.3	85.7	95.5	97.9	110	132	166	186	233	261
PT1.2SPL150	150	15.2	18.7	29.1	43.4	57.6	66.7	81.8	88.4	101	110	122	138	146	195	212	259	283
PT1.2SPL200	200	20.2	25.0	38.8	57.9	76.8	88.9	109	118	135	147	163	184	196	260	283	345	378
PT1.2SPL250	250	25.3	31.2	48.5	72.4	96.4	111	137	148	169	184	204	230	245	325	353	431	472
PT1.2SPL300	300	30.3	37.5	58.2	86.9	116	133	164	177	202	220	245	276	294	390	425	518	567
PT1.2SPL350	350	35.4	43.7	67.9	102	135	156	191	207	236	257	286	322	343	454	495	604	662
PT1.2SPL400	400	40.4	50.0	77.6	116	154	178	218	236	269	294	326	368	391	519	566	690	756
PT1.2SPL500	500	50.5	62.5	96.9	145	192	222	272	294	337	367	408	459	490	649	707	862	945
PT1.2SPL600	600	60.6	75.0	116	174	230	267	327	353	404	441	490	551	588	779	849	1035	1134
PT1.2SPL700	700	70.7	87.5	135	203	269	311	382	412	471	514	571	643	685	909	990	1208	1323
PT1.2SPL800	800	80.8	100	155	232	307	355	436	471	539	588	653	734	784	1039	1132	1380	1512
PT1.2SPL900	900	90.9	112	175	260	346	400	491	531	606	661	734	827	881	1169	1273	1552	1701
PT1.2SPL1000	1000	101	125	194	289	384	445	546	589	673	734	816	918	979	1298	1415	1725	1890
PT1.2SPL1100	1100	111	137	213	318	422	489	600	648	741	808	898	1010	1077	1428	1557	1897	2079
PT1.2SPL1200	1200	121	150	232	347	461	533	654	707	808	881	979	1102	1175	1559	1697	2070	2267



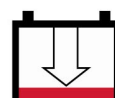
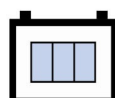
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C ±5°C(+68°F ±9°F)

Final voltage: 1.05 V/cell

Cell Type	Capacity (C5 Ah)	Discharge Time in Hours							Discharge Time in minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
PT1.2SPL10	10	1.04	1.28	2.01	3.21	4.6	5.63	6.84	7.66	8.77	10.0	10.9	12.2	14.4	19.1	20.6	24.2	25.1
PT1.2SPL20	20	2.06	2.55	3.96	6.26	8.8	10.8	14.0	15.7	18.7	22.3	24.3	27.2	29.7	40.1	45.0	59.9	67.4
PT1.2SPL30	30	3.09	3.83	5.94	9.39	13.3	16.1	21.0	23.5	28.2	33.4	36.5	40.8	44.5	60.2	67.6	89.8	101
PT1.2SPL40	40	4.12	5.10	7.92	12.5	17.6	21.5	27.9	31.3	37.5	44.5	48.6	54.4	59.3	80.2	90.0	120	134
PT1.2SPL50	50	5.15	6.37	9.90	15.7	22.0	26.9	34.9	39.1	46.9	55.7	60.8	67.9	74.2	100	113	150	169
PT1.2SPL60	60	6.18	7.65	11.9	18.8	26.5	32.3	42.0	47.0	56.3	66.8	73.0	81.5	89.0	121	135	180	202
PT1.2SPL70	70	7.07	8.84	13.9	22.2	30.7	37.1	45.7	51.2	60.0	69.2	75.0	82.2	95.2	118	130	168	185
PT1.2SPL80	80	8.08	10.1	15.8	25.3	35.1	42.4	52.2	58.5	68.5	79.1	85.7	93.9	109	135	148	192	212
PT1.2SPL90	90	9.27	11.6	18.0	28.2	39.0	46.5	57.9	64.8	75.3	84.8	89.0	101	122	141	154	189	205
PT1.2SPL100	100	10.3	12.9	20.0	31.4	43.4	51.6	64.3	72.0	83.6	94.2	98.9	112	136	156	171	210	228
PT1.2SPL120	120	12.1	15.2	23.8	38.0	52.6	63.6	78.3	87.7	103	119	128	140	163	202	224	288	317
PT1.2SPL150	150	15.5	19.3	30.0	47.0	65.0	77.5	96.4	108.0	126	141	148	167	204	235	257	314	341
PT1.2SPL200	200	20.6	25.6	40.0	62.6	86.7	104	129	144.0	168	188	198	222	272	313	342	419	455
PT1.2SPL250	250	25.8	32.0	50.0	78.3	108	129	160	179.7	210	236	247	278	340	391	428	524	569
PT1.2SPL300	300	31.0	38.4	60.0	94.2	130	155	193	216.2	251	282	297	334	408	470	513	628	682
PT1.2SPL350	350	36.1	44.9	70.0	109	151	181	225	251.6	293	330	346	389	476	548	599	733	796
PT1.2SPL400	400	41.2	51.3	80.0	126	173	206	257	287.4	334	377	395	445	544	626	685	838	910
PT1.2SPL500	500	51.5	64.1	100	156	217	258	321	359.5	418	472	495	556	680	783	856	1047	1138
PT1.2SPL600	600	61.8	76.9	120	188	260	310	386	431.8	502	565	593	667	816	939	1028	1257	1365
PT1.2SPL700	700	72.1	89.7	140	219	304	362	450	503.8	585	660	692	779	952	1096	1199	1467	1592
PT1.2SPL800	800	82.5	102	160	250	347	414	514	575.9	670	754	791	890	1088	1253	1370	1676	1820
PT1.2SPL900	900	92.8	115	180	282	390	465	579	648.0	753	848	890	1001	1224	1409	1541	1885	2047
PT1.2SPL1000	1000	103	128	200	313	434	517	643	720.2	836	942	989	1113	1359	1565	1713	2095	2274
PT1.2SPL1100	1100	113	141	220	344	477	568	707	791.7	920	1037	1088	1224	1496	1722	1884	2305	2502
PT1.2SPL1200	1200	123	154	240	376	520	620	771	863.7	1004	1131	1187	1335	1632	1879	2055	2514	2729



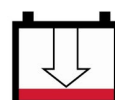
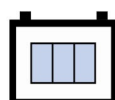
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C ±5°C(+68°F ±9°F)

Final voltage: 1.00 V/cell

Cell Type	Capacity (C5 Ah)	Discharge Time in Hours							Discharge Time in minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
PT1.2SPL10	10	1.04	1.28	2.02	3.26	4.67	5.90	7.64	8.56	9.90	11.3	12.2	13.7	16.3	21.6	23.8	27.6	28.1
PT1.2SPL20	20	2.08	2.58	4.04	6.46	9.2	11.6	15.5	17.3	22.1	25.4	27.7	30.8	37.1	46.0	51.7	67.9	76.4
PT1.2SPL30	30	3.11	3.87	6.06	9.70	13.8	17.4	23.3	26.0	33.0	38.1	41.6	34.0	55.6	69.0	77.5	102	114
PT1.2SPL40	40	4.14	5.15	8.08	12.9	18.4	23.1	31.0	34.7	44.1	50.8	55.5	46.4	76.2	92.0	103	135	153
PT1.2SPL50	50	5.18	6.44	10.1	16.1	23.0	28.9	38.7	43.4	55.1	63.5	69.3	65.7	92.7	115	129	170	191
PT1.2SPL60	60	6.22	7.73	12.1	19.4	27.6	34.7	46.5	52.1	66.1	76.2	83.2	70.3	112	138	155	203	230
PT1.2SPL70	70	7.15	8.93	14.1	22.6	32.5	40.1	52.2	58.4	70.7	81.4	87.1	89.4	109	136	147	191	213
PT1.2SPL80	80	8.33	10.3	16.2	25.9	36.4	44.7	58.0	64.9	79.2	90.2	97.9	85.9	119	144	157	192	206
PT1.2SPL90	90	9.37	11.6	18.2	29.1	41.0	50.3	65.2	73.1	89.1	101	110	122	134	162	177	216	232
PT1.2SPL100	100	10.4	12.9	20.2	32.3	45.5	55.9	72.5	81.2	99.0	113	122	136	149	180	196	240	258
PT1.2SPL120	120	12.2	15.3	24.2	38.8	55.8	68.6	89.4	100	121	139	149	140	185	233	253	328	364
PT1.2SPL150	150	15.6	19.4	30.3	48.5	68.2	83.9	109	122	149	169	184	160	223	270	294	359	386
PT1.2SPL200	200	20.9	25.8	40.4	64.6	91.0	111	144	162	197	226	245	206	296	360	392	479	514
PT1.2SPL250	250	26.0	32.2	50.5	80.8	114	139	181	202	247	283	306	273	371	450	489	598	644
PT1.2SPL300	300	31.2	38.6	60.6	97.0	136	168	217	244	297	340	367	289	445	540	588	718	772
PT1.2SPL350	350	36.4	45.1	70.7	113	159	196	253	284	347	396	428	412	519	631	685	838	901
PT1.2SPL400	400	41.6	51.5	80.8	129	182	224	290	325	396	453	490	491	594	720	783	957	1029
PT1.2SPL500	500	52.0	64.4	101	161	228	279	362	405	495	566	612	553	741	900	979	1197	1287
PT1.2SPL600	600	62.4	77.3	121	194	273	335	435	487	594	679	734	693	890	1080	1174	1436	1545
PT1.2SPL700	700	72.8	90.2	141	226	318	391	507	568	693	793	857	816	1038	1261	1370	1676	1802
PT1.2SPL800	800	83.2	103	162	259	364	447	579	649	791	905	979	917	1186	1441	1566	1915	2059
PT1.2SPL900	900	93.7	116	182	291	409	503	652	730	890	1019	1102	1098	1335	1620	1762	2155	2316
PT1.2SPL1000	1000	104	129	202	323	455	558	724	811	989	1132	1224	1233	1483	1800	1957	2394	2574
PT1.2SPL1100	1100	114	141	222	356	500	615	797	892	1088	1245	1346	1386	1632	1981	2153	2633	2831
PT1.2SPL1200	1200	125	155	242	388	545	671	869	973	1187	1359	1469	1496	1780	2161	2348	2873	3088



Calculation Methods

Information required for battery capacity calculation

The following information needed for a precise battery capacity calculation:

- ☐ Nominal voltage of the system
- ☐ Load current required
- ☐ Backup time required
- ☐ Maximum voltage (for charging)
- ☐ Minimum voltage
- ☐ Temperature range
- ☐ Battery layout and available space
- ☐ Physical condition

Float Voltage Operation

In these conditions the float voltage, being the voltage at which the general load circuit will operate, then a decision will have to be reached on the cell float voltage needed to maintain the battery in the required condition.

$$\text{Number of cells required} = \frac{\text{Circuit voltage}}{\text{Cell Float voltage}} \quad \text{Minimum cell voltage} = \frac{\text{Minimum D.C. voltage}}{\text{Number of cells}}$$

The most commonly used float voltages are 1.40-1.48 voltage per cell, but the exact figure has to be related carefully to circumstances.

For Example

A NILE Nickel Cadmium battery is required to maintain an inverter load of 50KVA at 0.8 power factor for a backup time of 30 minutes, at 20~25°C temperature. The DC voltage to the inverter operates within the limit of 265 volts with the battery on float charge to a minimum of 202 volts at end of back up time. The inverter has an 85% efficiency rate.

-Number of Cells (at recommended float of 1.44VPC) = $265/1.44 \approx 184$ cells

-Minimum Cell Voltage = $202/184 \approx 1.10$ volts per cell

-Maximum Battery Current

$$= \frac{\text{Inverter load in KVA} \times \text{Power factor}}{\text{Min. cell voltage} \times \text{Number of cells} \times \text{Inverter efficiency}}$$

$$= \frac{50\text{KVA} \times 0.80}{1.10 \times 184 \times 0.85} = 232.5 \text{ Amps}$$

We shall choose the battery with capacity equal or just above 232.5Amps.

To meet the 30 minutes backup time requirement, we determine to choose the battery size from PT1.2SPL Range.

From our catalogue data, the cell type is PT1.2SPL300

Battery shall comprise 184 cells of NILE Nickel Cadmium type PT1.2SPL300

System Voltage	Number of Cells	Spread Range Number of Cells
24	20	18 ~ 21
36	30	27 ~ 31
48	40	36 ~ 41
110	92	88 ~ 93
220	184	180 ~ 186

The number of cells in a battery may be determined by simply dividing the nominal voltage of the system by the nominal voltage of a cell (1.2 Volts).

