ENVIRONMENTALLY FRIENDLY
AND THE MOST RELIABLE

NICKEL-IRON BATTERIES

for green energy systems

www.ads.ua

ADS®

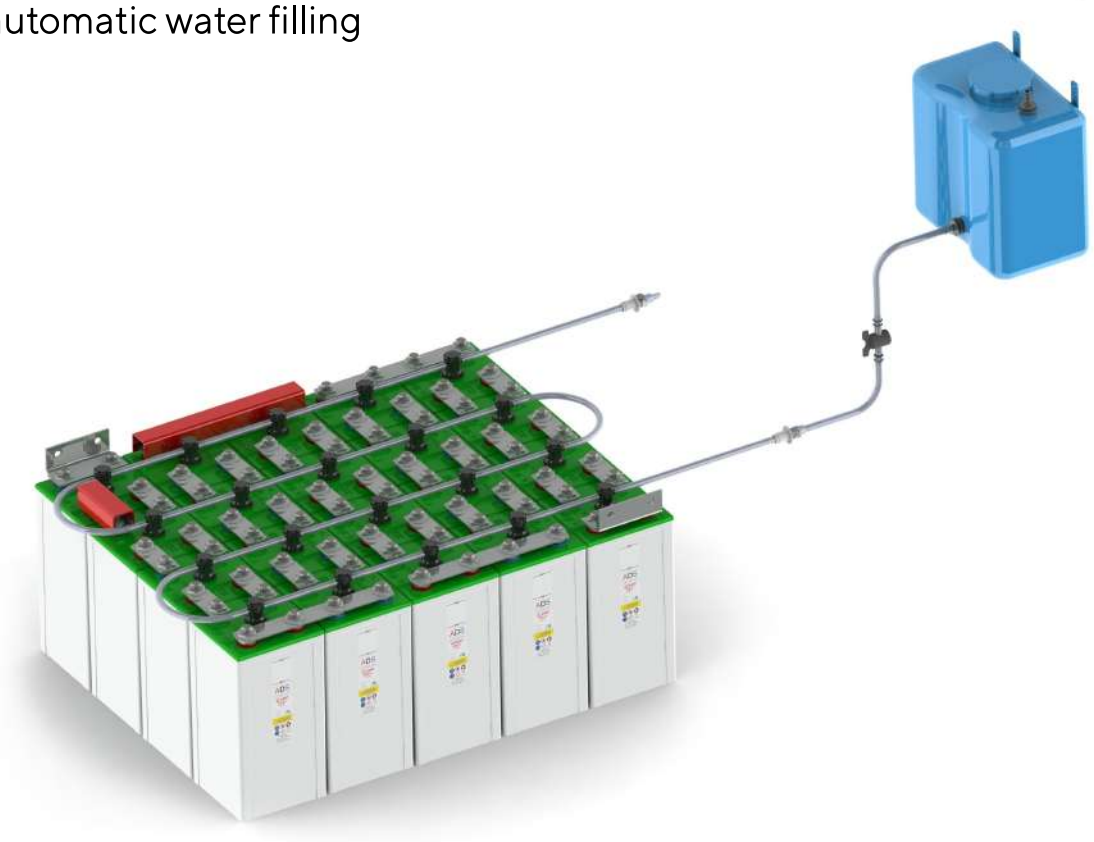
ABOUT US

The work of autonomous solar power plants directly depends on the reliability of the batteries, which have become a sought-after product of this industry. Batteries for solar systems accumulate energy generated by solar batteries during the day, and further ensure the power supply process in the evening and at night.

LLC "ADS" - the manufacturer of prismatic alkaline batteries with a nickel anode, of different sizes and capacity ratings, as well as the batteries have different capacities, used in many areas of industry, energy, transport and other equipment.

Advantages of nickel-iron batteries produced by ADS

- There is no need to change the electrolyte during the entire service life;
- High reliability - the possibility of instantaneous sudden failure is excluded;
- Restoration of working capacity after deep discharges, short-term short-circuits and long-term storage;
- Resistance to mechanical stress and vibration
- Wide operating range of ambient temperatures (-40 ... + 50 ° C);
- Preservation of working capacity after a long stay at a temperature of minus 50 ° C;
- Translucent plastic battery case allows for visual control of the electrolyte level;
- Do not contain highly toxic elements, are environmentally friendly
- No necessary for battery maintenance thanks to a system of automatic water filling



ADVANTAGES

Advantages of nickel-iron batteries in comparison with lead-acid batteries.

KEY ADVANTAGES AND BENEFITS COMPARED TO ACID BATTERIES Characteristics	Alkaline batteries	Acid batteries
Wide operating temperature range from -40 ° C to + 50 ° C	+	from +18°C to +24°C
Restoration of the nominal capacity in returning to the recommended temperature range	+	The irreversible capacity loss
Not sensitive to overcharge	+	Increased gas emission, causing a risk of explosion
Functionality after prolonged storage	+	Reduction of rated capacity
Functionality after deep discharges	+	Deep discharging is not allowed - "immediate death"
Long service life (over 20 years)	+	service life up to 5 years

SINGLE CELL DESIGN

ADS cell design is based on a well proven pocket plate technology, which grants battery reliability and long service life.

FLIP-TOP Ventilation Cap

Safety Terminal

Leak protection & minimum carbonate formation.

Electrolyte Level Sticker

Shows the level of the electrolyte.

Translucent PP Cell Case

Easy to control the level of electrolyte.

Electrode Frame

Consisting of electrode edge and side bars. Seals the plates and works as a current collector.

Plastic Grid Separator

Insulates the plates and allows free electrolyte circulation.

Positive Pockets

Formed from nickel coated perforated steel stripe containing the Nickel based active material.

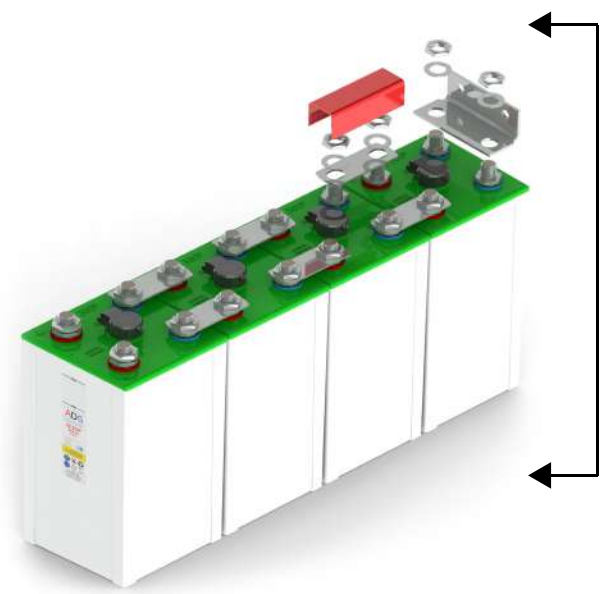
Negative Pockets

Formed from perforated steel stripe containing the Iron based active material.

CHARGING CONDITIONS

Charging conditionsfor FL-FM type

Constant voltage	Stand by
Float charge:	1.59 –1.60 V/cell
Boost charge:	1.65 –1.75 V/cell
Buffer operation	1.60 –1.65 V/cell
Current limitation:	0.25 It A
Constant current at 25 °C	
Standard charge:	0.2 It A for 8 h
Boost charge:	0.25 It A for 3.5 h
followed by	0.2 It A for 3.5 h
Trickle charge:	0.001 – 0.002 A/Ah



The contents of delivery set is included:

nuts, washers, cell connectors and protective caps.

FL Range

Capacities and dimensions – **International System of units**

Cell type	Capacity	Overall	Width	Length	Approx. Weight	Approx. electrolyte volume	Electrolyte per cell		Cell connection
	C5 Ah Ah	Height* mm	per cell mm	per cell mm	per cell kg	between level marks cm^3	Solid kg	Liquid L	bolt per pole
FL30P	30	240	113	59	2.30	83	0.22	0.75	M 10
FL40P	40	275	127	60	3.50	184	0.30	1.0	M 14
FL50P	50	275	127	60	3.50	184	0.30	1.0	M 14
FL60P	60	357	136	74	5.20	296	0.50	1.70	M 10
FL70P	70	357	136	74	5.40	296	0.50	1.70	M 10
FL80P	80	357	136	74	5.70	296	0.50	1.70	M 10
FL90P	90	357	136	74	5.90	296	0.50	1.70	M 10
FL100P	100	357	136	74	6.10	296	0.50	1.70	M 10
FL110P	110	327	134	112	7.40	467	0.65	2.20	M 16
FL125P	125	327	134	112	7.50	467	0.65	2.20	M 16
FL150P	150	327	134	112	7.60	467	0.65	2.20	M 16
FL160P	160	327	134	112	7.70	467	0.65	2.20	M 16
FL180P	180	400	167	129	12.40	654	0.95	3.20	M 20
FL200P	200	400	167	129	12.50	654	0.95	3.20	M 20
FL250P	250	400	167	129	13.00	654	0.95	3.20	M 20
FL300P	300	400	167	129	14.00	654	0.95	3.20	M 20
FL350P	350	382	174	171	17.60	874	1.10	3.50	2 x M 20
FL400P	400	382	174	171	18.00	874	1.10	3.50	2 x M 20
FL450P	450	525	169	155	22.90	1186	2.00	6.70	2 x M 16
FL500P	500	525	169	155	23.20	1186	2.00	6.70	2 x M 16
FL550P	550	525	169	155	23.50	1186	2.00	6.70	2 x M 16
FL600P	600	525	169	155	23.70	1186	2.00	6.70	2 x M 16
FL650P	650	415	178	370	39.00	2007	3.55	12.00	3 x M 20
FL700P	700	415	178	370	40.00	2007	3.55	12.00	3 x M 20
FL750P	750	415	178	370	41.00	2007	3.55	12.00	3 x M 20
FL800P	800	415	178	370	42.00	2007	3.55	12.00	3 x M 20
FL850P	850	415	178	370	43.00	2007	3.55	12.00	3 x M 20
FL900P	900	415	178	370	44.00	2007	3.55	12.00	3 x M 20
FL950P	950	415	178	450	50.00	2461	4.40	14.80	4 x M 20
FL1000P	1000	415	178	450	51.00	2461	4.40	14.80	4 x M 20
FL1100P	1100	415	178	450	53.00	2461	4.40	14.80	4 x M 20
FL1200P	1200	415	178	560	62.00	3084	5.40	18.20	4 x M 20
FL1300P	1300	415	178	560	63.00	3084	5.40	18.20	4 x M 20
FL1400P	1400	415	178	560	64.00	3084	5.40	18.20	4 x M 20
FL1500P	1500	415	178	560	65.00	3084	5.40	18.20	4 x M 20
FL1600P	1600	415	178	560	68.00	3084	5.40	18.20	4 x M 20
FL1700P	1700	415	178	560	69.00	3084	5.40	18.20	4 x M 20

* Height including the IP2X terminal cover

LCE / FL Range

Capacities and dimensions – **Imperial units**

Cell type	Capacity	Overall	Width	Length	Approx. Weight	Approx. electrolyte volume	Electrolyte per cell		Cell connection
	C5 Ah Ah	Height* mm	per cell mm	per cell mm	per cell kg	between level marks cm^3	Solid kg	Liquid L	bolt per pole
FM30P	30	275	127	60	3.20	184	0.30	1.00	M 14
FM40P	40	275	127	60	3.40	184	0.30	1.00	M 14
FM50P	50	275	127	60	3.60	184	0.30	1.00	M 14
FM60P	60	357	136	74	5.60	296	0.50	1.70	M 10
FM70P	70	357	136	74	5.70	296	0.50	1.70	M 10
FM80P	80	357	136	74	5.80	296	0.50	1.70	M 10
FM90P	90	357	136	74	5.90	296	0.50	1.70	M 14
FM100P	100	357	136	74	6.00	296	0.50	1.70	M 14
FM110P	110	327	134	112	8.10	467	0,65	2,20	M 16
FM125P	125	327	134	112	8.20	467	0,65	2,20	M 16
FM150P	140	327	134	112	8.30	467	0,65	2,20	M 16
FM160P	160	400	167	129	13.10	654	0.95	3.20	M 20
FM180P	185	400	167	129	13.40	654	0.95	3.20	M 20
FM200P	200	400	167	129	13.70	654	0.95	3.20	M 20
FM250P	250	400	167	129	14.80	654	0.95	3.20	M 20
FM350P	350	415	178	250	28.50	1327	2.40	8.00	2 x M 20
FM400P	400	415	178	250	30.00	1327	2.40	8.00	2 x M 20
FM450P	450	415	178	250	31.00	1327	2.40	8.00	2 x M 20
FM500P	500	415	178	250	32.00	1327	2.40	8.00	2 x M 20
FM550P	550	415	178	370	41.00	2007	3.55	12.00	3 x M 20
FM600P	600	415	178	370	42.50	2007	3.55	12.00	3 x M 20
FM650P	650	415	178	370	44.00	2007	3.55	12.00	3 x M 20
FM700P	700	415	178	370	45.00	2007	3.55	12.00	3 x M 20
FM750P	750	415	178	370	46.00	2007	3.55	12.00	3 x M 20
FM800P	800	415	178	450	53.00	2461	4.40	14.80	4 x M 20
FM850P	850	415	178	450	55.00	2461	4.40	14.80	4 x M 20
FM900P	900	415	178	450	57.00	2461	4.40	14.80	4 x M 20
FM950P	950	415	178	560	67.00	3084	5.40	18.20	4 x M 20
FM1000P	1000	415	178	560	68.00	3084	5.40	18.20	4 x M 20
FM1100P	1100	410	195	560	69.00	3084	5.40	18.20	4 x M 10
FM1200P	1200	410	195	560	70.00	3084	5.40	18.20	4 x M 20

DISCHARGE DATA TABLE

FL Range

Performance of fully charged cells
Available Amperes at + 20°C ± 5°C
(+ 68°F ± 9°F)

Final voltage: 1.00 V/cell

Cell type	Capacity	Hours			
	C5 Ah Ah	10	8	5	3
FL30P	30	3.08	3.83	6.00	9.60
FL40P	40	4.10	5.10	8.00	12.8
FL50P	50	5.64	7.01	11.0	17.6
FL60P	60	6.36	7.91	12.4	19.8
FL70P	70	7.07	8.84	14.0	22.4
FL80P	80	8.59	10.7	17.0	27.2
FL90P	90	9.10	11.4	18.0	28.8
FL100P	100	10.1	12.6	20.0	32.0
FL110P	110	11.1	13.9	22.0	35.2
FL125P	125	12.6	15.8	25.0	40.0
FL150P	150	14.7	18.3	29.0	46.4
FL160P	160	16.7	20.8	33.0	52.8
FL180P	180	18.7	23.4	37.0	59.2
FL200P	200	20.2	25.3	40.0	64.0
FL250P	250	26.3	32.5	51.0	81.6
FL300P	300	30.9	38.2	60.0	96.0
FL350P	350	37.1	45.9	72.0	115
FL400P	400	41.2	51.0	80.0	128
FL450P	450	47.4	58.6	92.0	147
FL500P	500	51.5	63.7	100.0	160
FL550P	550	56.7	70.1	110	176
FL600P	600	61.8	76.4	120	192
FL650P	650	67.0	82.8	130	208
FL700P	700	72.1	89.2	140	224
FL750P	750	77.3	95.5	150	240
FL800P	800	82.4	102	160	256
FL850P	850	85.5	106	166	266
FL900P	900	91.7	113	178	285
FL950P	950	95.3	118	185	296
FL1000P	1000	103	127	200	320
FL1100P	1100	113	140	220	352
FL1200P	1200	124	153	240	384
FL1300P	1300	134	166	260	416
FL1400P	1400	144	178	280	448
FL1500P	1500	155	191	300	480
FL1600P	1600	165	204	320	512
FL1700P	1700	174	215	338	541

FL Range

Performance of fully charged cells
Available Amperes at + 20°C ± 5°C
(+ 68°F ± 9°F)

Final voltage: 1.05 V/cell

Cell type	Capacity	Hours			
	C5 Ah Ah	10	8	5	3
FL30P	30	3.06	3.79	5.88	9,3
FL40P	40	4.08	5.05	7.84	12.4
FL50P	50	5.61	6.94	10.8	17.1
FL60P	60	6.32	7.83	12.2	19,2
FL70P	70	7.00	8.75	13.7	21.9
FL80P	80	8.50	10.6	16.7	26.6
FL90P	90	9.00	11.3	17.6	28,2
FL100P	100	10.0	12.5	19.6	31.3
FL110P	110	11.0	13.8	21.6	34,5
FL125P	125	12.5	15.6	24.5	39.2
FL150P	150	14.5	18.1	28.4	45
FL160P	160	16.5	20.6	32.3	51.7
FL180P	180	18.5	23.1	36.3	58
FL200P	200	20.0	25.0	39.2	62.7
FL250P	250	26.1	32.4	50.4	79
FL300P	300	28.6	35.5	55.4	86.8
FL350P	350	30.7	38.1	59.3	93
FL400P	400	36.8	45.7	71.2	112
FL450P	450	40.9	50.8	79.1	124
FL500P	500	47.0	58.4	91.0	143
FL550P	550	51.1	63.5	98.9	155
FL600P	600	56.2	69.8	109	171
FL650P	650	61.3	76.2	119	186
FL700P	700	66.4	82.5	129	202
FL750P	750	71.5	88.9	138	217
FL800P	800	76.6	95.2	148	233
FL850P	850	81.7	102	158	248
FL900P	900	90.9	113	176	276
FL950P	950	94.5	117	183	287
FL1000P	1000	102	127	198	310
FL1100P	1100	112	140	218	341
FL1200P	1200	123	152	237	372
FL1300P	1300	133	165	257	403
FL1400P	1400	143	178	277	434
FL1500P	1500	153	190	297	465
FL1600P	1600	163	203	317	496
FL1700P	1700	173	215	334	524

DISCHARGE DATA TABLE

FL Range

Performance of fully charged cells
Available Amperes at + 20°C ± 5°C
(+ 68°F ± 9°F)
Final voltage: 1.11 V/cell

Cell type	Capacity	Hours			
	C5 Ah Ah	10	8	5	3
FL30P	30	3.00	3.68	5.65	8,03
FL40P	40	4.00	4.90	7.53	10.7
FL50P	50	5.50	6.74	10.4	14.7
FL60P	60	6.20	7.60	11.7	16,6
FL70P	70	6.93	8.49	13.1	18.7
FL80P	80	8.42	10.3	15.9	22.7
FL90P	90	8.92	10.9	16.8	24
FL100P	100	9.91	12.1	18.7	26.7
FL110P	110	10.9	13.3	20.5	29
FL125P	125	12.4	15.2	23.3	33.3
FL150P	150	14.4	17.6	27.1	38
FL160P	160	16.3	20.0	30.8	44.0
FL180P	180	18.3	22.4	34.5	49
FL200P	200	19.8	24.3	37.3	53.3
FL250P	250	25.5	31.3	48.0	66
FL300P	300	30.0	36.8	56.5	78
FL350P	350	36.0	44.1	67.8	93
FL400P	400	40.0	49.0	75.3	104
FL450P	450	46.0	56.4	86.6	120
FL500P	500	50.0	61.3	94.1	130
FL550P	550	55.0	67.4	104	143
FL600P	600	60.0	73.6	113	157
FL650P	650	65.0	79.7	122	170
FL700P	700	70.0	85.8	132	183
FL750P	750	75.0	92.0	141	196
FL800P	800	80.0	98	151	208
FL850P	850	83.0	102	156	217
FL900P	900	89.0	109	168	232
FL950P	950	98	120	184	256
FL1000P	1000	100	123	188	261
FL1100P	1100	110	135	207	287
FL1200P	1200	120	147	226	313
FL1300P	1300	130	159	245	339
FL1400P	1400	140	172	264	365
FL1500P	1500	150	184	282	391
FL1600P	1600	160	196	301	417
FL1700P	1700	169	207	318	441

FM Range

Performance of fully charged cells
Available Amperes at + 20°C ± 5°C
(+ 68°F ± 9°F)
Final voltage: 1.00 V/cell

Cell type	Capacity	Hours						
	C5 Ah Ah	10	8	5	3	2	1,5	1
FM30P	30	3.08	3.83	6.00	9.60	12.9	16.0	21.2
FM40P	40	4.10	5.10	8.00	12.8	17.2	21.3	28.3
FM50P	50	5.64	7.01	11.0	17.6	23.6	29.3	38.9
FM60P	60	6.36	7.91	12.4	19.8	26.6	33.0	43.8
FM70P	70	7.07	8.84	14.0	22.4	30.4	36.9	47.5
FM80P	80	8.59	10.7	17.0	27.2	36.9	44.8	57.7
FM90P	90	9.10	11.4	18.0	28.8	39.1	47.5	61.1
FM100P	100	10.1	12.6	20.0	32.0	43.4	52.8	67.9
FM110P	110	11.1	13.9	22.0	35.2	47.8	58.0	74.7
FM125P	125	12.6	15.8	25.0	40.0	54.3	66.0	84.9
FM150P	150	14.7	18.3	29.0	46.4	63.0	76.5	98.5
FM160P	160	16.7	20.8	33.0	52.8	71.7	87.1	112
FM180P	180	18.7	23.4	37.0	59.2	80.4	97.6	126
FM200P	200	20.2	25.3	40.0	64.0	86.9	106	136
FM250P	250	26.3	32.5	51.0	81.6	109	131	168
FM300P	300	30.9	38.2	60.0	96.0	128	154	198
FM350P	350	37.1	45.9	72.0	115	154	185	237
FM400P	400	41.2	51.0	80.0	128	171	206	263
FM450P	450	47.4	58.6	92.0	147	196	236	303
FM500P	500	51.5	63.7	100	160	214	257	329
FM550P	550	56.7	70.1	110	176	235	283	362
FM600P	600	61.8	76.4	120	192	256	308	395
FM650P	650	67.0	82.8	130	208	278	334	428
FM700P	700	72.1	89.2	140	224	299	360	461
FM750P	750	77.3	95.5	150	240	320	386	494
FM800P	800	82.4	102	160	256	342	411	527
FM850P	850	85.5	106	166	266	354	427	547
FM900P	900	91.7	113	178	285	380	458	586
FM950P	950	95.3	118	185	296	395	476	609
FM1000P	1000	103	127	200	320	427	514	659
FM1100P	1100	113	140	220	352	470	566	725
FM1200P	1200	124	153	240	384	512	617	790
FM1300P	1300	134	166	260	416	555	668	856
FM1400P	1400	144	178	280	448	598	720	922
FM1500P	1500	155	191	300	480	641	771	988
FM1600P	1600	165	204	320	512	683	823	1054
FM1700P	1700	174	215	338	541	722	869	1113

DISCHARGE DATA TABLE

FM Range

Performance of fully charged cells
Available Amperes at + 20°C ± 5°C
(+ 68°F ± 9°F)

Final voltage: 1.05 V/cell

Cell type	Capacity	Hours						
	C5 Ah Ah	10	8	5	3	2	1,5	1
FM30P	30	3.06	3.79	5.88	9,3	11.6	13.7	18.0
FM40P	40	4.08	5.05	7.84	12.4	15.4	18.3	23.9
FM50P	50	5.61	6.94	10.8	17.1	21.2	25.2	32.9
FM60P	60	6.32	7.83	12.2	19,2	23.9	28.4	37.1
FM70P	70	7.00	8.75	13.7	21.9	26.9	31.6	39.2
FM80P	80	8.50	10.6	16.7	26.6	32.6	38.4	47.5
FM90P	90	9.00	11.3	17.6	28,2	34.6	40.6	50.3
FM100P	100	10.0	12.5	19.6	31.3	38.4	45.1	55.9
FM110P	110	11.0	13.8	21.6	34,5	42.2	49.7	61.5
FM125P	125	12.5	15.6	24.5	39.2	48.0	56.4	69.9
FM150P	150	14.5	18.1	28.4	45	55.7	65.4	81.1
FM160P	160	16.5	20.6	32.3	51.7	63.4	74.5	92.3
FM180P	180	18.5	23.1	36.3	58	71.0	83.5	103
FM200P	200	20.0	25.0	39.2	62.7	76.8	90.3	112
FM250P	250	26.1	32.4	50.4	79	98.7	113	141
FM300P	300	28.6	35.5	55.4	86.8	108	124	154
FM350P	350	30.7	38.1	59.3	93	116	132	165
FM400P	400	36.8	45.7	71.2	112	139	159	198
FM450P	450	40.9	50.8	79.1	124	155	177	220
FM500P	500	47.0	58.4	91.0	143	178	203	253
FM550P	550	51.1	63.5	98.9	155	193	221	276
FM600P	600	56.2	69.8	109	171	213	243	303
FM650P	650	61.3	76.2	119	186	232	265	331
FM700P	700	66.4	82.5	129	202	252	287	358
FM750P	750	71.5	88.9	138	217	271	309	386
FM800P	800	76.6	95.2	148	233	290	331	413
FM850P	850	81.7	102	158	248	310	353	441
FM900P	900	90.9	113	176	276	344	393	490
FM950P	950	94.5	117	183	287	358	408	510
FM1000P	1000	102	127	198	310	387	442	551
FM1100P	1100	112	140	218	341	426	486	606
FM1200P	1200	123	152	237	372	464	530	661
FM1300P	1300	133	165	257	403	503	574	716
FM1400P	1400	143	178	277	434	542	618	771
FM1500P	1500	153	190	297	465	580	662	827
FM1600P	1600	163	203	317	496	619	706	882
FM1700P	1700	173	215	334	524	654	746	931

FM Range

Performance of fully charged cells
Available Amperes at + 20°C ± 5°C
(+ 68°F ± 9°F)

Final voltage: 1.11 V/cell

Cell type	Capacity	Hours						
	C5 Ah Ah	10	8	5	3	2	1,5	1
FM30P	30	3.00	3.68	5.65	8,03	10.2	12.2	14.4
FM40P	40	4.00	4.90	7.53	10.7	13.6	16.2	19.2
FM50P	50	5.50	6.74	10.4	14.7	18.7	22.3	26.4
FM60P	60	6.20	7.60	11.7	16,6	21.1	25.2	29.7
FM70P	70	6.93	8.49	13.1	18.7	23.6	27.7	32.4
FM80P	80	8.42	10.3	15.9	22.7	28.6	33.6	39.3
FM90P	90	8.92	10.9	16.8	24	30.3	35.6	41.6
FM100P	100	9.91	12.1	18.7	26.7	33.7	39.5	46.3
FM110P	110	10.9	13.3	20.5	29	37.0	43.5	50.9
FM125P	125	12.4	15.2	23.3	33.3	42.1	49.4	57.8
FM150P	150	14.4	17.6	27.1	38	48.8	57.3	67.1
FM160P	160	16.3	20.0	30.8	44.0	55.6	65.2	76.3
FM180P	180	18.3	22.4	34.5	49	62.3	73.1	85.6
FM200P	200	19.8	24.3	37.3	53.3	67.4	79.1	92.5
FM250P	250	25.5	31.3	48.0	66	83.5	96.3	114
FM300P	300	30.0	36.8	56.5	78	98.3	113	134
FM350P	350	36.0	44.1	67.8	93	118	136	160
FM400P	400	40.0	49.0	75.3	104	131	151	178
FM450P	450	46.0	56.4	86.6	120	151	174	205
FM500P	500	50.0	61.3	94.1	130	164	189	223
FM550P	550	55.0	67.4	104	143	180	208	245
FM600P	600	60.0	73.6	113	157	197	226	267
FM650P	650	65.0	79.7	122	170	213	245	289
FM700P	700	70.0	85.8	132	183	229	264	312
FM750P	750	75.0	92.0	141	196	246	283	334
FM800P	800	80.0	98	151	208	262	302	356
FM850P	850	83.0	102	156	217	272	313	370
FM900P	900	89.0	109	168	232	292	336	396
FM950P	950	98	120	184	256	321	370	436
FM1000P	1000	100	123	188	261	328	377	445
FM1100P	1100	110	135	207	287	360	415	490
FM1200P	1200	120	147	226	313	393	453	534
FM1300P	1300	130	159	245	339	426	491	579
FM1400P	1400	140	172	264	365	459	528	624
FM1500P	1500	150	184	282	391	491	566	668
FM1600P	1600	160	196	301	417	524	604	713
FM1700P	1700	169	207	318	441	554	638	753

IMPORTANT NOTICE

The nominal capacity C5 is not the basis for the performance of the batteries. Performance depends on the battery construction or on the different battery ranges, respectively. Therefore, our discharge tables should be used to find out the appropriated cell type for a specific application. The nominal capacity C5 is based on the available ampere hours (Ah) at a discharge rate of 5 hours to a final discharge voltage of 1.00 V per cell at 20 °C ± 5 °C.

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