

Ni-Cd single cells

LD P - M P ranges

Capacity: 10 Ah to 70 Ah

LDP MP



Nickel-cadmium single cells are designed for general purpose applications, where maximum operating reliability is a key factor:

- switch tripping
- emergency lighting
- alarms
- DC instrumentation

LD P cells are designed for long discharge periods, typically 2 hours and longer.

M P cells are designed for medium discharge periods between 30 minutes and 3 hours.

Benefits

- They provide a long service life, minor maintenance requirements, outstanding resistance to electrical and mechanical abuse, excellent charge retention, a long shelf life and long operation over a wide temperature range.
- Translucent polypropylene containers allow visibility of the electrolyte level, hence facilitating maintenance in stationary applications.
- The junction between the lid and the container is thermo-welded, ensuring good mechanical and electrical resistance.
- Flip top vents assure an easy maintenance.
- The products are qualified according IEC 60 623.

Delivering quality

ALCAD

Mechanical characteristics

norwatt@norwatt.es

Cell type	Capacity C ₅ A (Ah)	Electrolyte reserve		Approx. weight per cell		Height (H)		Dimensions (mm)		Length (L1)		Terminal
		(cc)	(in ³)	kg	lbs.	Width (W)		Length (L1)				
						mm	in	mm	in			
LD 10 P	10	80	4.88	0.9	1.9	177	6.97	122.5	4.83	35.5	1.40	M 6
LD 20 P	20	80	4.88	1.1	2.4	177	6.97	122.5	4.83	35.5	1.40	M 6
LD 30 P	30	165	10.1	1.8	4.0	237	9.34	122.5	4.83	44.5	1.75	M 6
LD 40 P	40	165	10.1	1.9	4.1	237	9.34	122.5	4.83	44.5	1.75	M 6
LD 55 P	55	195	14.0	2.8	6.1	291	11.5	122.5	4.83	54.5	2.15	M 10
LD 70 P	70	195	14.0	3.1	6.8	291	11.5	122.5	4.83	54.5	2.15	M 10
M 11 P	11	115	7.02	1.7	3.7	287	11.3	87	3.43	46	1.81	M 10
M 18 P	18	110	6.71	1.9	4.1	287	11.3	87	3.43	46	1.81	M 10
M 25 P	25	105	6.41	2.0	4.4	287	11.3	87	3.43	46	1.81	M 10
M 32 P	32	230	14.0	3.0	6.6	287	11.3	87	3.43	86	3.39	M 10
M 38 P	38	225	13.7	3.2	7.0	287	11.3	87	3.43	86	3.39	M 10
M 45 P	45	215	13.1	3.4	7.5	287	11.3	87	3.43	86	3.39	M 10
M 55 P	53	210	12.8	3.6	8.0	287	11.3	87	3.43	86	3.39	M 10
M 60 P	59	205	12.5	3.7	8.1	287	11.3	87	3.43	86	3.39	M 10



Alcad is committed to the highest standards of environmental stewardship

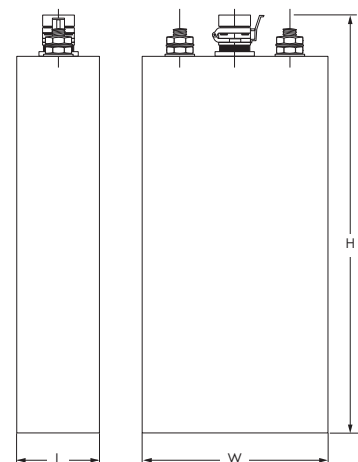
Implementing this commitment to minimise the impact of its products and operations on the environment means that Alcad gives priority to recycled over unrecycled raw materials, reduces its plant releases into the environment year after year, minimizes water usage, and ensures that its customers have recycling solutions for their batteries at the end of their lives.

Regarding industrial Ni-Cd batteries, Alcad has had partnerships for many years with collection companies in most EU countries as well as in North

America. This collection network receives and dispatches our customers' batteries at the end of their lives to fully approved recycling facilities, in compliance with the Laws governing transboundary waste shipments. Alcad offers these services free of charge to its customers.

Please find a list of our collection points on our web site.

In other countries, Alcad assists its customers in finding environmentally sound recycling solutions. Please contact your sales representative for further information.



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Cell performance L type at +20°C ± 5°C (+68°F ± 41°F)

Available amperes for fully charged cells after constant current charging to IEC 60 623

Final voltage: 1.00 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	1.13	1.36	2.00	3.03	4.05	4.87	6.10	7.00	8.20
LD 20 P	20	2.26	2.73	4.00	6.07	8.10	9.73	12.2	14.0	16.4
LD 30 P	30	3.27	3.94	6.00	9.50	13.2	16.0	19.8	22.4	25.8
LD 40 P	40	4.36	5.25	8.00	12.7	17.6	21.3	26.4	29.9	34.4
LD 55 P	55	5.83	7.22	11.0	17.8	25.3	30.8	38.5	44.0	50.6
LD 70 P	70	7.42	9.19	14.0	22.6	32.2	39.2	49.0	56.0	64.4

Final voltage: 1.05 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	1.09	1.33	1.92	2.80	3.60	4.27	5.20	6.00	7.00
LD 20 P	20	2.18	2.65	3.84	5.60	7.20	8.53	10.4	12.0	14.0
LD 30 P	30	3.18	3.90	5.82	8.90	12.0	14.4	18.0	20.0	22.8
LD 40 P	40	4.24	5.20	7.76	11.9	16.0	19.2	24.0	26.7	30.4
LD 55 P	55	5.83	7.15	10.8	17.2	24.2	29.0	35.2	39.6	44.0
LD 70 P	70	7.42	9.10	13.7	21.9	30.8	36.9	44.8	50.4	56.0

Final voltage: 1.10 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	1.04	1.26	1.82	2.57	3.15	3.60	4.20	4.80	5.60
LD 20 P	20	2.08	2.53	3.64	5.13	6.30	7.20	8.40	9.60	11.2
LD 30 P	30	3.12	3.83	5.70	8.20	10.4	12.0	14.7	16.4	19.2
LD 40 P	40	4.16	5.10	7.60	10.9	13.8	16.0	19.6	21.9	25.6
LD 55 P	55	5.72	7.01	10.6	15.6	20.4	24.2	29.7	33.7	38.5
LD 70 P	70	7.28	8.93	13.4	19.8	25.9	30.8	37.8	42.9	49.0

Final voltage: 1.14 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	0.97	1.15	1.60	2.20	2.70	3.07	3.60	4.00	4.40
LD 20 P	20	1.94	2.30	3.20	4.40	5.40	6.13	7.20	8.00	8.80
LD 30 P	30	3.00	3.64	5.40	7.50	9.15	10.2	12.0	12.8	14.4
LD 40 P	40	4.00	4.85	7.20	10.0	12.2	13.6	16.0	17.1	19.2
LD 55 P	55	5.61	6.81	10.1	14.1	17.6	19.8	23.1	25.7	29.7
LD 70 P	70	7.14	8.66	12.9	18.0	22.4	25.2	29.4	32.7	37.8

Cell performance M type at +20°C ± 5°C (+68°F ± 41°F)

Available amperes for fully charged cells after constant current charging to IEC 60 623

Final voltage: 1.00 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.12	1.39	2.20	3.56	5.12	6.60	9.13	11.3	14.7	18.5	21.1	24.4	29.0	44.0	46.2	59.4	72.6
M 18 P	18	1.83	2.27	3.60	5.82	8.37	10.8	14.9	18.5	24.1	30.2	34.6	40.0	47.5	72.0	75.6	97.2	119
M 25 P	25	2.54	3.15	5.00	8.08	11.6	15.0	20.8	25.7	33.5	42.0	48.0	55.5	66.0	100	105	135	165
M 32 P	32	3.25	4.03	6.40	10.3	14.9	19.2	26.6	32.9	42.9	53.8	61.4	71.0	84.5	128	134	173	211
M 38 P	38	3.86	4.79	7.60	12.3	17.7	22.8	31.5	39.0	50.9	63.8	73.0	84.4	100	152	160	205	251
M 45 P	45	4.57	5.67	9.00	14.6	21.0	27.0	37.3	46.2	60.3	75.6	86.4	99.9	118	180	189	243	297
M 55 P	53	5.38	6.68	10.6	17.1	24.6	31.8	44.0	54.4	71.0	89.0	102	118	140	212	223	286	350
M 60 P	59	5.99	7.43	11.8	19.1	27.4	35.4	49.0	60.6	79.1	99.1	113	131	156	236	248	319	389

Final voltage: 1.05 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.11	1.38	2.18	3.52	5.06	6.38	8.80	10.7	13.4	16.2	18.0	20.5	25.1	36.3	40.7	51.7	62.7
M 18 P	18	1.81	2.25	3.56	5.76	8.28	10.4	14.4	17.5	22.0	26.5	29.5	33.5	41.0	59.4	66.6	84.6	103
M 25 P	25	2.52	3.13	4.95	8.00	11.5	14.5	20.0	24.3	30.5	36.8	41.0	46.5	57.0	82.5	92.5	118	143
M 32 P	32	3.22	4.00	6.34	10.2	14.7	18.6	25.6	31.1	39.0	47.0	52.5	59.5	73.0	106	118	150	182
M 38 P	38	3.83	4.75	7.52	12.2	17.5	22.0	30.4	37.0	46.4	55.9	62.3	70.7	86.6	125	141	179	217
M 45 P	45	4.54	5.63	8.91	14.4	20.7	26.1	36.0	43.8	54.9	66.2	73.8	83.7	103	148	167	212	257
M 55 P	53	5.34	6.63	10.5	17.0	24.4	30.7	42.4	51.6	64.7	77.9	86.9	98.6	121	175	196	249	302
M 60 P	59	5.94	7.38	11.7	18.9	27.1	34.2	47.2	57.4	72.0	86.7	96.8	110	135	195	218	277	336

Final voltage: 1.10 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.09	1.35	2.13	3.41	4.84	6.01	7.81	9.09	11.4	13.5	15.0	17.2	19.8	30.8	34.1	44.0	52.8
M 18 P	18	1.78	2.21	3.49	5.58	7.92	9.84	12.8	14.9	18.7	22.1	24.5	28.1	32.4	50.4	55.8	72.0	86.4
M 25 P	25	2.48	3.08	4.85	7.75	11.0	13.7	17.8	20.7	26.0	30.8	34.0	39.0	45.0	70.0	77.5	100	120
M 32 P	32	3.17	3.94	6.21	9.92	14.1	17.5	22.7	26.5	33.3	39.4	43.5	49.9	57.6	89.6	99.2	128	154
M 38 P	38	3.77	4.67	7.37	11.8	16.7	20.8	27.0	31.4	39.5	46.7	51.7	59.3	68.4	106	118	152	182
M 45 P	45	4.46	5.53	8.73	14.0	19.8	24.6	32.0	37.2	46.8	55.3	61.2	70.2	81.0	126	140	180	216
M 55 P	53	5.25	6.52	10.3	16.4	23.3	29.0	37.6	43.8	55.1	65.2	72.1	82.7	95.4	148	164	212	254
M 60 P	59	5.85	7.26	11.4	18.3	26.0	32.3	41.9	48.8	61.4	72.6	80.2	92.0	106	165	183	236	283

Final voltage: 1.14 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.06	1.32	2.07	3.23	4.40	5.35	6.71	7.63	9.02	10.6	11.9	13.9	17.2	26.4	29.7	37.4	46.2
M 18 P	18	1.74	2.16	3.38	5.28	7.20	8.76	11.0	12.5	14.8	17.3	19.4	22.7	28.1	43.2	48.6	61.2	75.6
M 25 P	25	2.42	3.00	4.70	7.33	10.0	12.2	15.3	17.3	20.5	24.0	27.0	31.5	39.0	60.0	67.5	85.0	105
M 32 P	32	3.09	3.84	6.02	9.39	12.8	15.6	19.5	22.2	26.2	30.7	34.6	40.3	49.9	76.8	86.4	109	134
M 38 P	38	3.67	4.56	7.14	11.2	15.2	18.5	23.2	26.4	31.2	36.5	41.0	47.9	59.3	91.2	103	129	160
M 45 P	45	4.35	5.40	8.46	13.2	18.0	21.9	27.5	31.2	36.9	43.2	48.6	56.7	70.2	108	122	153	189
M 55 P	53	5.13	6.36	9.96	15.6	21.2	25.8	32.3	36.8	43.5	50.9	57.2	66.8	82.7	127	143	180	223
M 60 P	59	5.71	7.08	11.1	17.3	23.6	28.7	36.0	40.9	48.4	56.6	63.7	74.3	92.0	142	159	201	248

Cell performance L type at +20°C ± 5°C (+68°F ± 41°F)

Available amperes after long term floating with constant voltage charging

Final voltage: 1.00 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	1.13	1.36	2.00	3.03	3.85	4.38	5.31	5.95	6.81
LD 20 P	20	2.26	2.73	4.00	6.07	7.70	8.76	10.6	11.9	13.6
LD 30 P	30	3.27	3.94	6.00	9.50	12.5	14.4	17.2	19.0	21.4
LD 40 P	40	4.36	5.25	8.00	12.7	16.7	19.2	23.0	25.4	28.6
LD 55 P	55	5.83	7.22	11.0	17.8	24.0	27.7	33.5	37.4	42.0
LD 70 P	70	7.42	9.19	14.0	22.6	30.6	35.3	42.6	47.6	53.5

Final voltage: 1.05 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	1.09	1.33	1.92	2.55	3.10	3.58	4.21	4.77	5.46
LD 20 P	20	2.18	2.65	3.84	5.10	6.19	7.17	8.42	9.54	10.9
LD 30 P	30	3.18	3.90	5.82	8.10	10.3	12.1	14.6	15.9	17.8
LD 40 P	40	4.24	5.20	7.76	10.8	13.8	16.1	19.4	21.2	23.7
LD 55 P	55	5.83	7.15	10.8	15.7	20.8	24.3	28.5	31.5	34.3
LD 70 P	70	7.42	9.10	13.7	20.0	26.5	31.0	36.3	40.1	43.7

Final voltage: 1.10 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	1.04	1.22	1.64	2.13	2.52	2.81	3.19	3.58	4.09
LD 20 P	20	2.08	2.45	3.28	4.26	5.04	5.62	6.38	7.15	8.18
LD 30 P	30	3.12	3.71	5.13	6.81	8.28	9.36	11.2	12.2	14.0
LD 40 P	40	4.16	4.95	6.84	9.07	11.0	12.5	14.9	16.3	18.7
LD 55 P	55	5.72	6.80	9.50	12.9	16.3	18.9	22.6	25.1	28.1
LD 70 P	70	7.28	8.66	12.1	16.5	20.7	24.0	28.7	32.0	35.8

Final voltage: 1.14 V/cell

Cell type	C ₅ Ah	Hours					Minutes			
		10	8	5	3	2	90	60	45	30
LD 10 P	10	0.97	1.09	1.30	1.67	2.00	2.24	2.56	2.78	2.99
LD 20 P	20	1.94	2.19	2.59	3.34	4.00	4.48	5.11	5.56	5.98
LD 30 P	30	3.00	3.46	4.37	5.70	6.77	7.45	8.52	8.90	9.79
LD 40 P	40	4.00	4.61	5.83	7.60	9.03	9.93	11.4	11.9	13.1
LD 55 P	55	5.61	6.47	8.20	10.7	13.0	14.5	16.4	17.8	20.2
LD 70 P	70	7.14	8.23	10.4	13.7	16.6	18.4	20.9	22.7	25.7

Cell performance M type at +20°C ± 5°C (+68°F ± 41°F)

Available amperes after long term floating with constant voltage charging

Final voltage: 1.00 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.12	1.39	2.20	3.56	5.12	6.14	7.94	9.54	12.1	15.2	17.1	19.5	23.2	35.2	37.0	47.5	58.1
M 18 P	18	1.83	2.27	3.60	5.82	8.37	10.0	13.0	15.6	19.8	24.8	28.0	32.0	38.0	57.6	60.5	77.8	95.0
M 25 P	25	2.54	3.15	5.00	8.08	11.6	14.0	18.1	21.7	27.5	34.4	38.9	44.4	52.8	80.0	84.0	108	132
M 32 P	32	3.25	4.03	6.40	10.3	14.9	17.9	23.1	27.8	35.2	44.1	49.8	56.8	67.6	102	108	138	169
M 38 P	38	3.86	4.79	7.60	12.3	17.7	21.2	27.4	33.0	41.8	52.3	59.1	67.5	80.3	1	128	164	201
M 45 P	45	4.57	5.67	9.00	14.6	21.0	25.1	32.4	39.1	49.5	61.9	70.0	79.9	95.1	144	152	194	238
M 55 P	53	5.38	6.68	10.6	17.1	24.6	29.6	38.3	46.0	58.2	73.0	82.4	94.1	112	170	178	229	280
M 60 P	59	5.99	7.43	11.8	19.1	27.4	32.9	42.6	51.2	64.8	81.3	91.8	105.00	125	189	198	255	312

Final voltage: 1.05 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.11	1.38	2.18	3.52	4.55	5.42	7.22	8.57	10.5	12.3	13.7	15.5	18.8	27.2	30.5	38.8	47.0
M 18 P	18	1.81	2.25	3.56	5.76	7.45	8.87	11.8	14.0	17.1	20.1	22.4	25.4	30.8	44.6	50.0	63.5	77.0
M 25 P	25	2.52	3.13	4.95	8.00	10.4	12.3	16.4	19.5	23.8	27.9	31.2	35.3	42.8	61.9	69.4	88.1	107
M 32 P	32	3.22	4.00	6.34	10.2	13.2	15.8	21.0	24.9	30.5	35.8	39.9	45.2	54.7	79.2	88.8	113	137
M 38 P	38	3.83	4.75	7.52	12.2	15.7	18.7	24.9	29.6	36.2	42.5	47.4	53.7	65.0	94.1	105	134	162
M 45 P	45	4.54	5.63	8.91	14.4	18.6	22.1	29.5	35.1	42.9	50.3	56.1	63.6	77.0	111	124	159	192
M 55 P	53	5.34	6.63	10.5	17.0	21.9	26.1	34.8	41.3	50.4	59.2	66.1	74.9	90.6	131	147	187	227
M 60 P	59	5.94	7.38	11.7	18.9	24.4	29.1	38.7	45.9	56.1	65.9	73.5	83.4	101	146	164	208	252

Final voltage: 1.10 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.09	1.35	2.13	3.17	4.07	4.81	6.01	6.87	8.47	9.88	10.8	12.2	14.1	21.9	24.2	31.2	37.5
M 18 P	18	1.78	2.21	3.49	5.19	6.65	7.87	9.84	11.2	13.9	16.2	17.6	19.9	23.0	35.8	39.6	51.1	61.3
M 25 P	25	2.48	3.08	4.85	7.21	9.24	10.9	13.7	15.6	19.2	22.4	24.5	27.7	32.0	49.7	55.0	71.0	85.2
M 32 P	32	3.17	3.94	6.21	9.23	11.8	14.0	17.5	20.0	24.6	28.7	31.3	35.4	40.9	63.6	70.4	90.9	109
M 38 P	38	3.77	4.67	7.37	11.0	14.0	16.6	20.8	23.7	29.2	34.1	37.2	42.1	48.6	75.5	83.6	108	130
M 45 P	45	4.46	5.53	8.73	13.0	16.6	19.7	24.6	28.1	34.6	40.4	44.1	49.9	57.6	89.4	99.0	128	154
M 55 P	53	5.25	6.52	10.3	15.3	19.6	23.2	29.0	33.1	40.8	47.6	51.9	58.7	67.7	105	117	151	181
M 60 P	59	5.85	7.26	11.4	17.0	21.8	25.8	32.3	36.8	45.4	53.0	57.8	65.3	75.4	117	130	168	201

Final voltage: 1.14 V/cell

Cell type	C ₅ Ah	Hours					Minutes									Seconds		
		10	8	5	3	2	90	60	45	30	20	15	10	5	1	30	5	1
M 11 P	11	1.06	1.32	2.07	2.74	3.39	4.02	4.83	5.38	6.22	7.18	7.96	9.29	11.5	17.7	19.9	25.1	31.0
M 18 P	18	1.74	2.16	3.38	4.49	5.54	6.57	7.91	8.80	10.2	11.8	13.0	15.2	18.8	28.9	32.6	41.0	50.7
M 25 P	25	2.42	3.00	4.70	6.23	7.70	9.13	11.0	12.2	14.1	16.3	18.1	21.1	26.1	40.2	45.2	57.0	70.4
M 32 P	32	3.09	3.84	6.02	7.98	9.86	11.7	14.1	15.6	18.1	20.9	23.2	27.0	33.4	51.5	57.9	72.9	90.0
M 38 P	38	3.67	4.56	7.14	9.47	11.7	13.9	16.7	18.6	21.5	24.8	27.5	32.1	39.7	61.1	68.7	86.6	107
M 45 P	45	4.35	5.40	8.46	11.2	13.9	16.5	19.8	22.0	25.5	29.4	32.6	38.0	47.0	72.4	81.4	103	127
M 55 P	53	5.13	6.36	9.96	13.2	16.3	19.3	23.3	25.9	30.0	34.6	38.4	44.7	55.4	85.2	95.9	121	149
M 60 P	59	5.71	7.08	11.1	14.7	18.2	21.5	25.9	28.8	33.4	38.5	42.7	49.8	61.7	94.9	107	134	166

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