



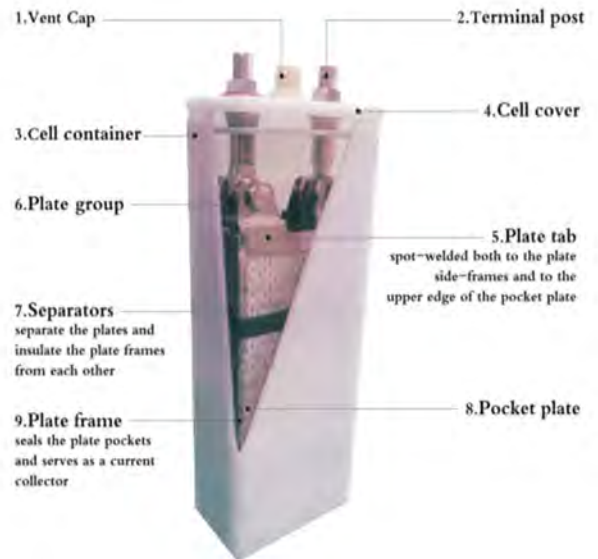
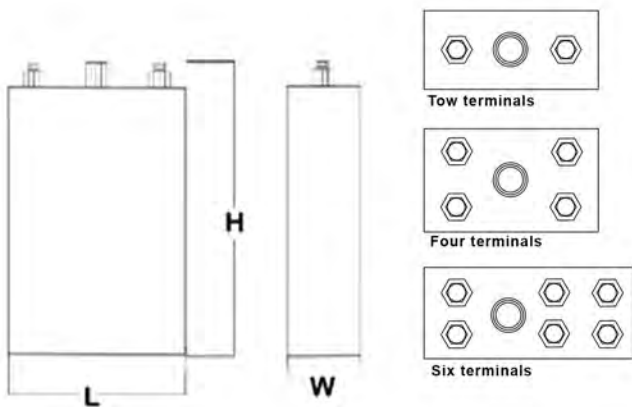
باتری های سری PE شرکت مهندسی و ساخت پرداس انرژی از نوع باتری های نیکل کادمیوم (Ni-Cd) در سه گروه دشارژ آهسته (PEL) ، دشارژ متوسط (PEM) و دشارژ سریع (PEH) با بالاترین سطح کیفی و کمترین نیاز به سرویس و نگهداری تولید می گردد .

این گروه از باتری های نیکل کادمیوم با بازدهی و ضریب اطمینان بالا ، محدوده وسیع دمای کارکرد ، ضریب حداقل خود دشارژی ، مقاوم در برابر شارژ و دشارژ اضافی و ساختار فیزیکی مستحکم ، مناسب برای استفاده در انواع روش های ذخیره سازی و تامین انرژی به صورت DC است.

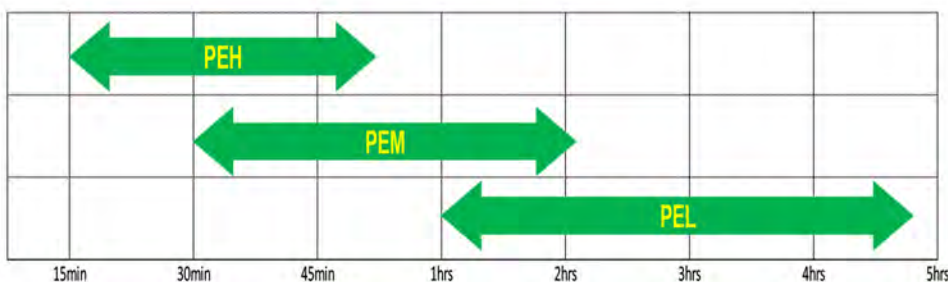
کاربرد این باتری ها در برخی از صنایع عبارتند از :

ذخیره انرژی های تجدید پذیر ، مخابرات ، معادن ، ناوبری هوایی ، حمل و نقل ریلی (راه آهن) ، نفت و گاز ، حفاری ، پتروشیمی ، خطوط انتقال و توزیع ، حمل و نقل ریلی شهری ، دیزل ژنراتور ، نیروگاهی و خدمات رفاهی است .

این باتری ها متناسب با استاندارد های روز دنیا و کنترل مداوم قطعات اولیه و محصولات تولیدی منطبق بر استاندارد ISO9001 : 2015 و HSE - MS بوده لذا دارای طول عمر بالا در دو گروه آمپر ساعت ، اورپایی و آسیایی به صورت سفارشی تولید میگردد که تطبیق پذیری مناسبی با انواع دستگاه های UPS و Rectifier را دارد.



Ecommended Type Selection



Recommended Charging Voltage		
MedCell Type	Floating charge voltages(V/pc)	Equalizing charge voltage(v/pc)
PEL	1.44-1.50	1.65-1.70
PEM	1.42-1.45	1.60-1.65
PEH	1.40-1.43	1.60-1.65

PARDAS ENERGY		TAIHANG	
PEL		GN	KPL
PEM		GNZ	KPM
PEH		GNG	KPH

Cell Capacity and Dimension Low Type									
PEL LOW RATE TYPE									
cell type	Nominal Voltage	Rated Capacity	Dimension(mm)			weight (filled)(Kg)	Electolyte Volume(L)	Pole	Container Material
			L	W	H				
PEL10	1.2	10	85	3	156	1.00	0.60	ABS/PP	M8
PEL20	1.2	20	114	52	266	2.00	0.60	ABS	M10
PEL20-(2)	1.2	20	82	43	258	1.30	0.30	ABS	M10
PEL20-(3)	1.2	20	135	54	265	1.80	0.80	ABS/PP	M10
PEL22	1.2	22	112	31	220	1.30	0.30	ABS/PP	M8
PEL30	1.2	30	114	52	266	2.20	0.50	ABS	M10
PEL30-(2)	1.2	30	135	54	265	2.00	0.60	ABS/PP	M10
PEL40	1.2	40	114	52	266	2.30	0.40	ABS	M10
PEL40-(2)	1.2	40	135	54	265	2.50	0.60	ABS/PP	M10
PEL40-(3)	1.2	40	141	66	226	2.60	0.50	PP	M10
PEL45-(2)	1.2	45	141	66	226	2.90	0.80	PP	M10
PEL50	1.2	50	138	61	266	3.20	0.70	ABS/PP	M10
PEL50-(2)	1.2	50	141	71	295	3.50	0.90	PP	M10
PEL60	1.2	60	143	76	275	4.00	1.10	ABS	M10
PEL60-(2)	1.2	60	135	53	370	3.90	1.00	PP	M10
PEL60-(3)	1.2	60	141	71	295	4.00	1.10	PP	M10
PEL60-(4)	1.2	60	139	79	295	4.30	1.13	ABS	M10
PEL70	1.2	70	139	579	295	4.40	1.00	ABS	M10
PEL70-(2)	1.2	70	141	71	295	4.00	0.80	PP	M10
PEL70-(3)	1.2	70	143	76	275	4.30	1.00	ABS	M10
PEL80	1.2	80	143	76	275	4.70	0.95	ABS	M10
PEL80-(1)	1.2	80	141	71	295	4.60	0.90	PP	M10
PEL80-(2)	1.2	80	139	79	295	4.60	1.10	ABS	M10
PEL90	1.2	90	139	79	362	5.90	1.40	ABS/PP	M10
PEL100-(2)	1.2	100	139	79	362	6.00	14.00	ABS/PP	M10
PEL100-(3)	1.2	100	143	100	280	6.00	1.40	ABS	M10
PEL120	1.2	120	139	79	362	6.20	1.30	ABS/PP	M10
PEL120-(3)	1.2	120	143	100	280	6.60	1.34	ABS	M10
PEL150	1.2	150	167	162	345	12.00	3.00	ABS/PP	M20x1.5
PEL150-(2)	1.2	150	164	104	345	9.30	2.00	ABS/PP	M20x1.5
PEL200	1.2	200	167	162	345	13.50	3.30	ABS/PP	M20x1.5
PEL250	1.2	250	167	162	345	14.00	3.40	ABS	M20x1.5
PEL300	1.2	300	282	170	348	22.50	5.00	ABS/PP	M20x1.5
PEL300-(2)	1.2	300	176	161	540	20.50	4.70	ABS	M16/20
PEL300-(3)	12	300	277	140	450	21.00	6.00	PP	M16
PEL400	1.2	400	282	170	348	25.00	5.00	ABS/PP	M20x1.5
PEL400-3	1.2	400	232	172	410	24.50	6.00	ABS	M16
PEL500	1.2	500	285	172	490	33.60	7.80	ABS	M20x1.5
PEL600	1.2	600	285	172	490	34.00	7.50	ABS	M20x1.5
PEL700	1.2	700	285	172	490	39.00	9.40	ABS	M20x1.5
PEL800	1.2	800	395	185	560	57.50	15.50	ABS	M20x1.5
PEL900	1.2	900	395	185	560	59.00	15.00	ABS	M20x1.5
PEL1000	1.2	1000	395	185	560	60.00	14.00	ABS	M20x1.5
PEL1100	1.2	1100	395	185	560	62.00	12.00	ABS	M20x1.5
PEL1200	1.2	1200	395	185	560	62.00	11.30	ABS	M20x1.5

PEM MEDIUM RATE TYPE									
cell type	Nominal Voltage	Rated Capacity	Dimension(mm)			weight (filled)(Kg)	Electrolyte Volume(L)	Pole	Container Material
			L	W	H				
PEM10	1.2	10	82	43	258	1.20	0.40	ABS/PP	M10
PEM20	1.2	20	135	54	265	1.90	0.60	ABS/PP	M10
PEM20-(2)	1.2	20	114	52	266	2.10	0.70	ABS/PP	M10
PEM20-(3)	1.2	30	135	54	265	2.40	0.60	ABS/PP	M10
PEM40	1.2	40	141	71	295	3.60	1.00	PP	M10
PEM45	1.2	45	86	86	273	3.20	0.70	PP	M10
PEM50	1.2	50	139	79	295	4.65	1.00	ABS	M10
PEM50-(2)	1.2	50	143	76	275	4.30	0.90	ABS	M10
PEM50-(3)	1.2	50	141	71	295	4.20	1.00	PP	M10
PEM60	1.2	60	139	79	295	5.30	1.20	ABS	M10
PEM60-(2)	1.2	60	141	71	295	4.40	1.00	PP	M10
PEM60-(3)	1.2	60	143	76	275	4.60	1.10	ABS	M10
PEM70	1.2	70	139	79	295	5.40	1.20	ABS	M10
PEM70-(3)	1.2	70	143	76	275	4.90	1.00	ABS	M10
PEM80	1.2	80	139	79	362	6.50	1.40	ABS/PP	M16
PEM80-(3)	1.2	80	143	100	280	5.80	1.50	ABS	M10
PEM90	1.2	90	164	104	345	8.20	1.62	ABS/PP	M20
PEM90-(2)	1.2	90	139	79	362	6.50	1.25	ABS/PP	M16
PEM100	1.2	100	164	104	345	9.30	1.80	ABS/PP	M20x1.5
PEM120-(4)	1.2	120	139	89	362	7.50	1.50	PP	M16
PEM150	1.2	150	167	162	345	12.50	2.70	ABS/PP	M20x1.5
PEM200	1.2	200	167	162	345	13.50	2.70	ABS/PP	M20x1.5
PEM250	1.2	250	282	170	348	20.60	4.60	ABS/PP	M20x1.5
PEM250-(2)	1.2	250	176	161	540	20.60	4.60	ABS	M16
PEM300	1.2	300	282	170	348	23.00	5.00	ABS/PP	M20x1.5
PEM300-(2)	1.2	300	176	161	540	22.60	5.00	ABS	M20x1.5
PEM400	1.2	400	282	170	348	27.00	5.83	ABS	M20x1.5
PEM500	1.2	500	285	172	490	36.50	8.50	ABS	M20x1.5
PEM600	1.2	600	285	172	490	38.50	9.70	ABS	M20x1.5
PEM700	1.2	700	395	185	560	54.70	11.50	ABS	M20x1.5
PEM800	1.2	800	395	185	560	66.00	15.00	ABS	M20x1.5
PEM900	1.2	900	395	185	560	66.00	15.00	ABS	M20x1.5
PEM1100	1.2	1100	395	185	560	68.00	12.50	ABS	M20x1.5
PEM1200	1.2	1200	395	185	560	70.00	12.50	ABS	M20x1.5

HAIGH RATE TYPE									
cell type	Nominal Voltage	Rated Capacity	Dimension(mm)			weight (filled)(Kg)	Electolyte Volume(L)	Pole	Container Material
			L	W	H				
PEH10	1.2	10	135	54	266	2.15	0.80	ABS/PP	M10
PEH20	1.2	20	135	54	266	2.55	0.63	ABS/PP	M10
PEH30	1.2	30	143	76	275	4.30	1.25	ABS	M10
PEH40	1.2	40	139	79	362	6.00	1.50	ABS/PP	M10
PEH50	1.2	50	139	79	362	6.03	1.35	ABS/PP	M16
PEH60	1.2	60	139	89	362	6.50	140.00	PP	M16
PEH80	12	80	164	104	345	9.30	2.00	ABS/PP	M20x1.5
PEH90	1.2	90	167	162	345	9.60	2.16	ABS/PP	M20x1.5
PEH100	1.2	100	167	162	345	13.30	3.60	ABS/PP	M20x1.5
PEH150	12	150	282	170	348	21.80	6.20	ABS/PP	M20x1.5
PEH200	12	200	282	170	348	25.60	6.10	ABS/PP	M20x1.5
PEH250	1.2	250	282	170	348	27.00	6.00	ABS/PP	M20x1.5
PEH300	1.2	300	395	185	560	.	.	ABS	M20x1.5
PEH400	1.2	400	395	185	560	.	.	ABS	M20x1.5

BATTERY CASES



power plant project

Tabriz Subway



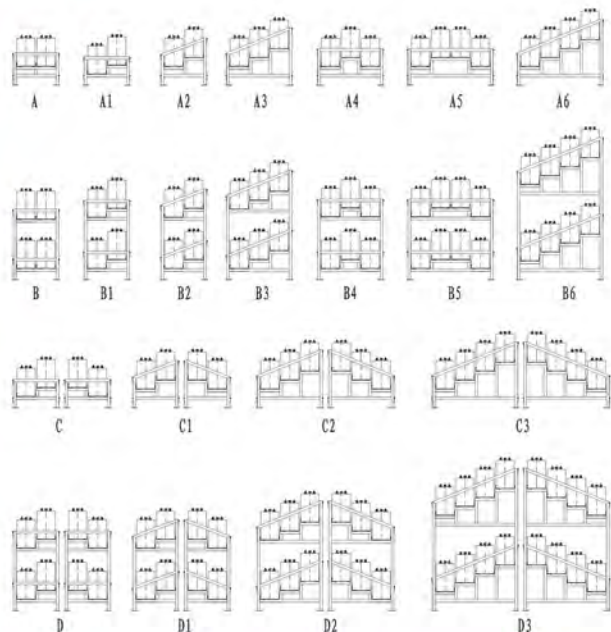
110V System & 48V System

power station



power station

Battery Rack Model



Final discharge voltage per cell												
Discharge current and time when battery is fully charge at 20°C±5°C												
End voltage of 1.0V/Cell												
Cell Type	Rated Capacity (Ah)	hour					minute					
		8	5	3	2	1	30	20	15	10	5	1
PEL10	10	1.26	2	3.1	4.2	6.5	8	8.5	9	10	11	12.2
PEL20	20	2.52	4	6.2	8.4	13	16	17	18	20	22	24.4
PEL22	22	2.77	4.4	6.8	9.2	14.3	17.6	18.7	19.8	22	24.2	26.8
PEL30	30	3.78	6	9.3	12.6	19.5	24	25.5	27	30	33	36.6
PEL40	40	5.04	8	12.4	16.8	26	32	34	36	40	44	48.8
PEL45	45	5.67	9	14	18.9	29.3	36	38.3	40.5	45	49.5	54.9
PEL50	50	6.3	10	15.5	21	32.5	40	42.5	45	50	55	61
PEL60	60	7.56	12	18.6	25.2	39	48	51	54	60	66	73.2
PEL70	70	8.82	14	21.7	29.4	45.5	56	59.5	63	70	77	85.4
PEL80	80	10.08	16	24.8	33.6	52	64	68	72	80	88	97.6
PEL90	90	11.34	18	27.9	37.8	58.5	72	76.5	81	90	99	109.8
PEL100	100	12.6	20	31	42	65	80	85	90	100	110	122
PEL110	110	13.86	22	34.1	46.2	71.5	88	93.5	99	110	121	134.2
PEL120	120	15.12	24	37.2	50.4	78	96	102	108	120	132	146.4
PEL150	150	18.9	30	46.5	63	97.5	120	127.5	135	150	165	183
PEL200	200	25.2	40	62	84	130	160	170	180	200	220	244
PEL250	250	31.5	50	77.5	105	162.5	200	212.5	225	250	275	305
PEL300	300	37.8	60	93	126	195	240	255	270	300	330	366
PEL400	400	50.4	80	124	168	260	320	340	360	400	440	488
PEL500	500	63	100	155	210	325	400	425	450	500	550	610
PEL600	600	75.6	120	186	252	390	480	510	540	600	660	732
PEL700	700	88.2	140	217	294	455	560	595	630	700	770	854
PEL800	800	100.8	160	248	336	520	640	680	720	800	880	976
PEL900	900	113.4	180	279	378	585	720	765	810	900	990	1098
PEL1000	1000	126	200	310	420	650	800	850	900	1000	1100	1220
PEL1100	1100	138.6	220	341	462	715	880	935	990	1100	1210	1342
PEL1200	1200	151.2	240	372	504	780	960	1020	1080	1200	1320	1464

Final discharge voltage per cell												
Discharge current and time when battery is fully charge at 20°C±5°C												
End voltage of 1.05V/Cell												
Cell Type	Rated Capacity (Ah)	hour					minute					
		8	5	3	2	1	30	20	15	10	5	1
PEL10	10	1.25	1.9	2.8	4	6	6.5	7	8	8.5	10	12
PEL20	20	2.5	3.9	5.6	8	12	13	14	16	17	20	24
PEL22	22	2.75	4.3	6.2	8.8	13.2	14.3	15.4	17.6	18.7	22	26.4
PEL30	30	3.75	5.8	8.4	12	18	19.5	21	24	25.5	30	36
PEL40	40	5	7.8	11.2	16	24	26	28	32	34	40	48
PEL45	45	5.63	8.7	12.6	18	27	29.3	31.5	36	38.3	45	54
PEL50	50	6.25	9.7	14	20	30	32.5	35	40	42.5	50	60
PEL60	60	7.5	11.6	16.8	24	36	39	42	48	51	60	72
PEL70	70	8.75	13.6	19.6	28	42	45.5	49	56	59.5	70	84
PEL80	80	10	15.5	22.4	32	48	52	56	64	68	80	96
PEL90	90	11.25	17.5	25.2	36	54	58.5	63	72	76.5	90	108
PEL100	100	12.5	19.4	28	40	60	65	70	80	85	100	120
PEL110	110	13.75	21.3	30.8	44	66	71.5	77	88	93.5	110	132
PEL120	120	15	23.3	33.6	48	72	78	84	96	102	120	144
PEL150	150	18.75	29.1	42	60	90	97.5	105	120	127.5	150	180
PEL200	200	25	38.8	56	80	120	130	140	160	170	200	240
PEL250	250	31.25	48.5	70	100	150	162.5	175	200	212.5	250	300
PEL300	300	37.5	58.2	84	120	180	195	210	240	255	300	360
PEL400	400	50	77.6	112	160	240	260	280	320	340	400	480
PEL500	500	62.5	97	140	200	300	325	350	400	425	500	600
PEL600	600	75	116.4	168	240	360	390	420	480	510	600	720
PEL700	700	87.5	135.8	196	280	420	455	490	560	595	700	840
PEL800	800	100	155.2	224	320	480	520	560	640	680	800	960
PEL900	900	112.5	174.6	252	360	540	585	630	720	765	900	1080
PEL1000	1000	125	194	280	400	600	650	700	800	850	1000	1200
PEL1100	1100	137.5	213.4	308	440	660	715	770	880	935	1100	1320
PEL1200	1200	150	232.8	336	480	720	780	840	960	1020	1200	1440

Final discharge voltage per cell												
Discharge current and time when battery is fully charge at 20°C±5°C												
End voltage of 1.10V/Cell												
Cell Type	Rated Capacity (Ah)	hour					minute					
		8	5	3	2	1	30	20	15	10	5	1
PEL10	10	1.23	1.9	2.7	3.5	4.6	5.5	6	6.5	7	8	10.5
PEL20	20	2.46	3.8	5.4	7	9.2	11	12	13	14	16	21
PEL22	22	2.71	4.18	5.9	7.7	10.1	12.1	13.2	14.3	15.4	17.6	23.1
PEL30	30	3.69	5.7	8.1	10.5	13.8	16.5	18	19.5	21	24	31.5
PEL40	40	5.54	7.6	10.8	14	18.4	22	24	26	28	32	42
PEL45	45	5.63	8.6	12.2	15.8	20.7	24.8	27	29.3	31.5	36	47.3
PEL50	50	6.15	9.5	13.5	17.5	23	27.5	30	32.5	35	40	52.5
PEL60	60	7.38	11.4	16.2	21	27.6	33	36	39	42	48	63
PEL70	70	8.61	13.3	18.9	24.5	32.2	38.5	42	45.5	49	56	73.5
PEL80	80	9.84	15.2	21.6	28	36.8	44	48	52	56	64	84
PEL90	90	11.07	17.1	24.3	31.5	41.4	49.5	54	58.5	63	72	94.5
PEL100	100	12.3	19	27	35	46	55	60	65	70	80	105
PEL110	110	13.53	20.9	29.7	38.5	50.6	60.5	66	71.5	77	88	115.5
PEL120	120	14.76	22.8	32.4	42	55.2	66	72	78	84	96	126
PEL150	150	18.45	28.5	40.5	52.5	69	82.5	90	97.5	105	120	157.5
PEL200	200	24.6	38	54	70	92	110	120	130	140	160	210
PEL250	250	30.75	47.5	67.5	87.5	115	137.5	150	162.5	175	200	262.5
PEL300	300	36.9	57	81	105	138	165	180	195	210	240	315
PEL400	400	49.2	76	108	140	184	220	240	260	280	320	420
PEL500	500	61.5	95	135	175	230	275	300	325	350	400	525
PEL600	600	73.8	114	162	210	276	330	360	390	420	480	630
PEL700	700	86.1	133	189	245	322	385	420	455	490	560	735
PEL800	800	98.4	152	216	280	368	440	480	520	560	640	840
PEL900	900	110.7	171	243	315	414	495	540	585	630	720	945
PEL1000	1000	123	190	270	350	460	550	600	650	700	800	1050
PEL1100	1100	135.3	209	297	385	506	605	660	715	770	880	1155
PEL1200	1200	147.6	228	324	420	552	660	720	780	840	960	1260

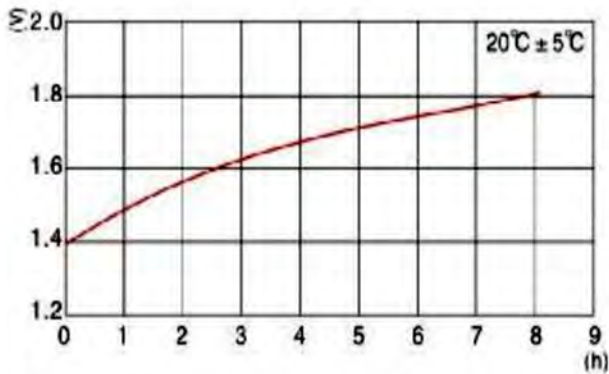
Final discharge voltage per cell

Discharge current and time when battery is fully charge at 20°C±5°C

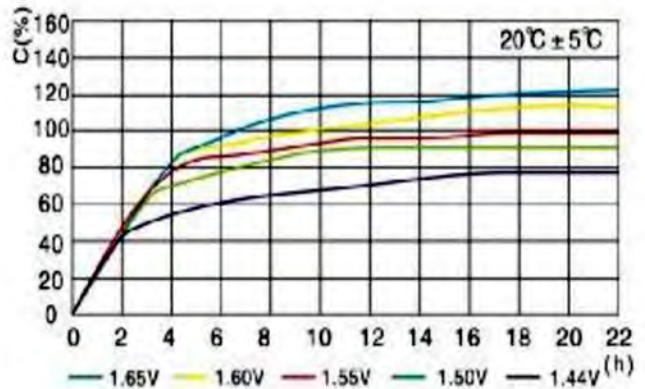
End voltage of 1.14V/Cell

Cell Type	Rated Capacity (Ah)	hour					minute					
		8	5	3	2	1	30	20	15	10	5	1
PEL10	10	118	1.8	2.5	2.8	3.8	4.5	5	5.5	6	6.5	8.5
PEL20	20	2.36	3.6	5	5.6	7.6	9	10	11	12	13	17
PEL22	22	2.6	3.96	5.5	6.2	8.4	9.9	11	12.1	13.2	14.3	18.7
PEL30	30	3.54	5.4	7.5	8.4	11.4	13.5	15	16.5	18	19.5	25.5
PEL40	40	4.72	7.2	10	11.2	15.2	18	20	22	24	26	34
PEL45	45	5.31	8.1	11.3	12.6	17.1	20.3	22.5	24.8	27	29.3	38.3
PEL50	50	5.9	9	12.5	14	19	22.5	25	27.5	30	32.5	42.5
PEL60	60	7.08	10.8	15	16.8	22.8	27	30	33	36	39	51
PEL70	70	8.26	12.6	17.5	19.6	26.6	31.5	35	38.5	42	45.5	59.5
PEL80	80	9.44	14.4	20	22.4	30.4	36	40	44	48	52	68
PEL90	90	10.62	16.2	22.5	25.2	34.2	40.5	45	49.5	54	58.5	76.5
PEL100	100	11.8	18	25	28	38	45	50	55	60	65	85
PEL110	110	12.98	19.8	27.5	30.8	41.8	49.5	55	60.5	66	71.5	93.5
PEL120	120	14.16	21.6	30	33.6	45.6	54	60	66	72	78	102
PEL150	150	17.7	27	37.5	42	57	67.5	75	82.5	90	97.5	127.5
PEL200	200	23.6	36	50	56	76	90	100	110	120	130	170
PEL250	250	29.5	45	62.5	70	95	112.5	125	137.5	150	162.5	212.5
PEL300	300	35.4	54	75	84	114	135	150	165	180	195	255
PEL400	400	47.2	72	100	112	152	180	200	220	240	260	340
PEL500	500	59	90	125	140	190	225	250	275	300	325	425
PEL600	600	70.8	108	150	168	228	270	300	330	360	390	510
PEL700	700	82.6	126	175	196	266	315	350	385	420	455	595
PEL800	800	94.4	144	200	224	304	360	400	440	480	520	680
PEL900	900	106.2	162	225	252	342	405	450	495	540	585	765
PEL1000	1000	118	180	250	280	380	450	500	550	600	650	850
PEL1100	1100	129.8	198	275	308	418	495	550	605	660	715	935
PEL1200	1200	141.6	216	300	336	456	540	600	660	720	780	1020

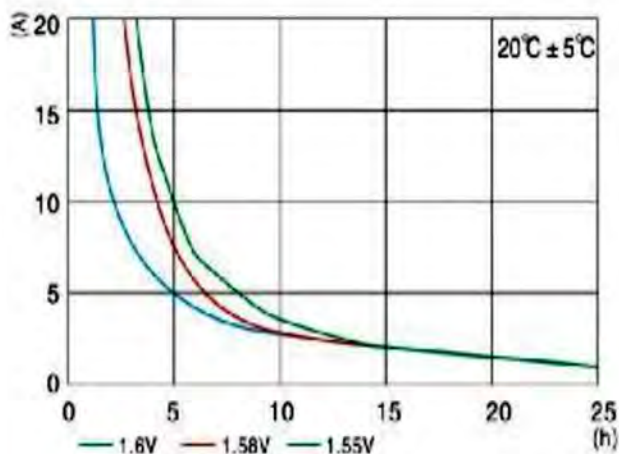
0.21A charge curves of Ni-cd low rate battery



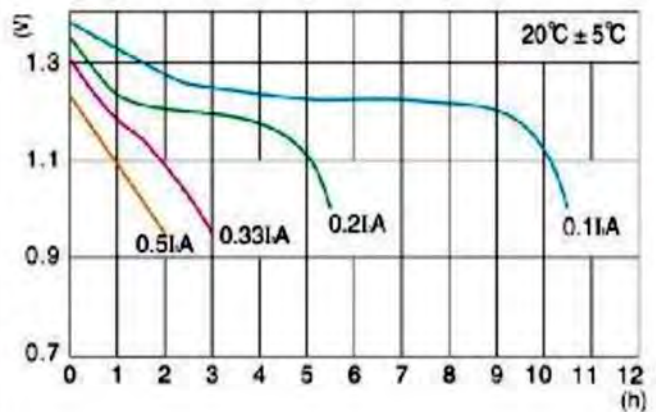
Ni-cd low rate charge curves related to different constant voltage



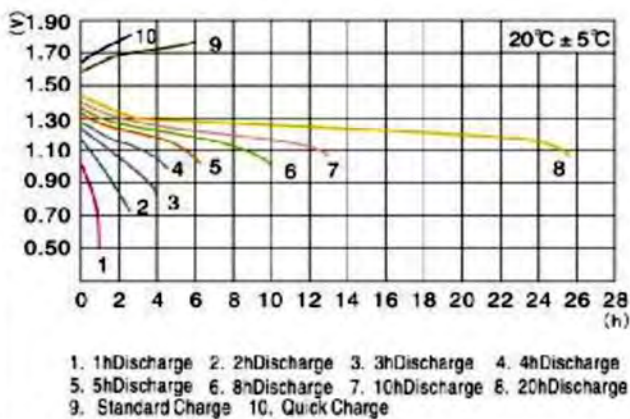
Constant voltage charge A-h curves of Ni-cd low rate battery



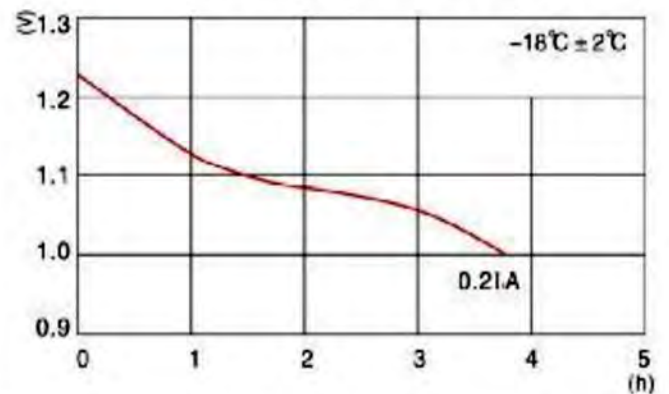
Discharge curves of Ni-cd low rate battery



Charge and discharge curves of Ni-cd battery



0.21A discharge curves of Ni-cd low rate battery



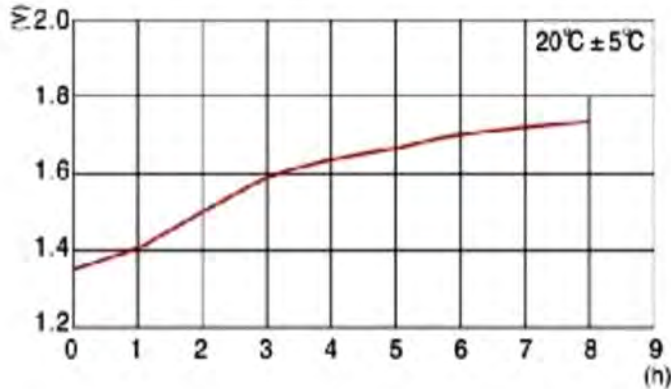
Final discharge voltage per cell															
Discharge current and time when battery is fully charge at 20°C±5°C															
End voltage of 1.0V/Cell															
Cell Type	Rated Capacity (Ah)	hour					minute					second			
		8	5	3	2	1	30	20	15	10	5	1	30	5	1
PEM10	10	1.36	2	3.2	4.6	7.5	11	12.5	13.5	15.6	18	24	26	34	35
PEM20	20	2.52	4	6.4	9.2	15	22	25	27	31.2	36	48	52	68	70
PEM30	30	3.78	6	9.6	13.8	22.5	33	37.5	40.5	46.8	54	72	78	102	105
PEM40	40	5.04	8	12.8	18.4	30	44	50	54	62.4	72	96	104	136	140
PEM45	45	5.67	9	14.4	20.7	33.8	49.5	56.3	60.8	70.2	81	108	117	153	157.5
PEM50	50	6.3	10	16	23	37.5	55	62.5	67.5	78	90	120	130	170	175
PEM60	60	7.66	12	19.2	27.6	45	66	75	81	93.6	108	144	156	204	210
PEM70	70	8.82	14	22.4	32.2	52.5	77	87.5	94.5	109.2	126	168	182	238	245
PEM75	75	9.45	15	24	34.5	56.3	82.5	93.8	101.3	117	135	180	195	255	262.5
PEM80	80	10.08	16	25.6	36.8	60	88	100	108	124.8	144	192	208	272	280
PEM90	90	11.34	18	28.8	41.4	67.5	99	112.5	121.5	140.4	162	216	234	306	315
PEM100	100	12.6	20	32	46	75	110	125	135	156	180	240	260	340	350
PEM120	120	15.12	24	38.4	55.2	90	132	150	162	187.2	216	288	312	408	420
PEM150	150	18.9	30	48	69	112.5	165	187.5	202.5	234	270	360	390	510	525
PEM200	200	25.2	40	64	92	150	220	250	270	312	360	480	520	680	700
PEM250	250	31.5	50	80	115	187.5	275	312.5	337.5	390	450	600	650	850	875
PEM300	300	37.8	60	96	138	225	330	375	405	468	540	720	780	1020	1050
PEM400	400	50.4	80	128	184	300	440	500	624	720	810	1080	1170	1560	1620
PEM500	500	63	100	160	230	375	550	625	675	780	900	1200	1300	1700	1750
PEM600	600	75.6	120	192	276	450	660	750	810	936	1080	1440	1560	2040	2100
PEM700	700	88.2	140	224	322	525	770	875	945	1092	1260	1680	1820	2380	2450
PEM800	800	100.8	160	256	368	600	880	1000	1080	1248	1440	1920	2080	2720	2800
PEM900	900	113.4	180	288	414	675	990	1125	1215	1404	1620	2160	2340	3060	3150
PEM1000	1000	126	200	320	460	750	1100	1250	1350	1560	1800	2400	2600	3400	3500
PEM1100	1100	138	220	352	506	825	1265	1430	1485	1716	1980	2640	2860	3740	3850
PEM1200	1200	151.2	240	384	552	900	1380	1560	1620	1872	2160	2880	3120	4080	4200

Final discharge voltage per cell															
Discharge current and time when battery is fully charge at 20°C±5°C															
End voltage of 1.05V/Cell															
Cell Type	Rated Capacity (Ah)	hour					minute					second			
		8	5	3	2	1	30	20	15	10	5	1	30	5	1
PEM10	10	1.24	1.96	3.1	4.2	7	9	11.5	12	13.2	16	20	22	25	30
PEM20	20	2.48	3.92	6.2	8.4	14	18	23	24	26.4	32	40	44	50	60
PEM30	30	3.72	5.88	9.3	12.6	21	27	34.5	36	39.6	48	60	66	75	90
PEM40	40	4.96	7.84	12.4	16.8	28	36	46	48	52.8	64	80	88	100	120
PEM45	45	5.58	8.82	13.95	18.9	31.5	40.5	51.8	54	59.4	72	90	99	112.5	135
PEM50	50	6.2	9.8	15.5	21	35	45	57.5	60	66	80	100	110	125	150
PEM60	60	7.44	11.76	19.6	25.2	42	54	69	72	79.2	96	120	132	150	180
PEM70	70	8.68	13.72	21.7	29.4	49	63	80.5	84	92.4	112	140	154	175	210
PEM75	75	9.3	14.7	23.25	31.5	52.5	67.5	86.3	90	99	120	150	165	187.5	225
PEM80	80	9.92	15.68	24.8	33.6	56	72	92	96	105.6	128	160	176	200	240
PEM90	90	11.16	17.64	27.9	37.8	63	81	103.5	108	118.8	144	180	198	225	270
PEM100	100	12.4	19.6	31	42	70	90	115	120	132	160	200	220	250	300
PEM120	120	14.88	23.52	37.2	50.4	84	108	138	144	158.4	192	240	264	300	360
PEM150	150	18.6	29.4	46.5	63	105	135	172.5	180	198	240	300	330	375	450
PEM200	200	24.8	39.2	62	84	140	180	230	240	264	320	400	440	500	600
PEM250	250	31	49	77.5	105	175	225	287.5	300	330	400	500	550	625	750
PEM300	300	37.2	58.8	93	126	210	270	345	360	396	480	600	660	750	900
PEM400	400	49.6	78.4	124	168	280	360	460	480	528	640	800	880	1000	1200
PEM500	500	62	98	155	210	350	450	575	600	660	800	1000	1100	1250	1500
PEM600	600	74.4	117.6	186	252	420	540	690	720	792	960	1200	1320	1500	1800
PEM700	700	86.8	137.2	217	294	490	630	805	840	924	1120	1400	1540	1750	2100
PEM800	800	99.2	156.8	248	336	560	720	920	960	1056	1280	1600	1760	2000	2400
PEM900	900	111.6	176.4	279	378	630	810	1035	1080	1188	1440	1800	1980	2250	2700
PEM1000	1000	124	196	310	420	700	900	1150	1200	1320	1600	2000	2200	2500	3000
PEM1100	1100	136.4	215.6	341	462	770	990	1265	1320	1452	1760	2200	2420	2750	3300
PEM1200	1200	148.8	235.2	372	504	840	1080	1380	1440	1584	1920	2400	2640	3000	3600

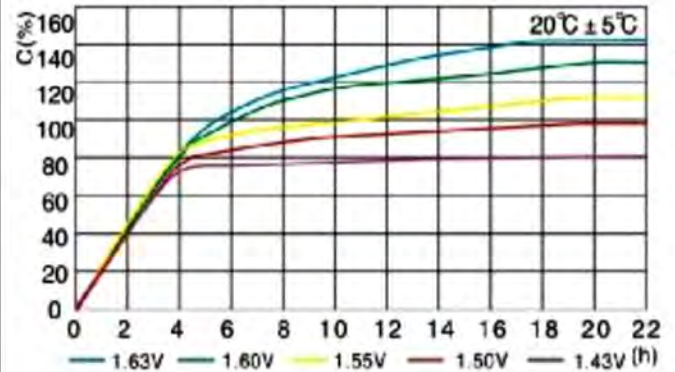
Final discharge voltage per cell															
Discharge current and time when battery is fully charge at 20°C±5°C															
End voltage of 1.10V/Cell															
Cell Type	Rated Capacity (Ah)	hour					minute					second			
		8	5	3	2	1	30	20	15	10	5	1	30	5	1
PEM10	10	1.22	1.94	3	3.8	6	8	9	10	11	13	18	19	22	26
PEM20	20	2.44	3.88	6	7.6	12	16	18	20	22	26	36	38	44	52
PEM30	30	3.66	5.82	9	11.4	18	24	27	30	33	39	54	57	66	78
PEM40	40	4.88	7.76	12	15.2	24	32	36	40	44	52	72	76	88	104
PEM45	45	5.49	8.73	13.5	17.1	27	36	40.5	45	49.5	58.5	81	85.5	99	117
PEM50	50	6.1	9.7	15	19	30	40	45	50	55	65	90	95	110	130
PEM60	60	7.32	11.64	18	22.8	36	48	54	60	66	78	108	114	132	156
PEM70	70	8.54	13.58	21	26.6	42	56	63	70	77	91	126	133	154	182
PEM75	75	9.15	14.55	22.5	28.5	45	60	67.5	75	82.5	97.5	135	142.5	165	195
PEM80	80	9.76	15.52	24	30.4	48	64	72	80	88	104	144	152	176	208
PEM90	90	10.98	17.46	27	34.2	54	72	81	90	99	117	162	171	198	234
PEM100	100	12.2	19.4	30	38	60	80	90	100	110	130	180	190	220	260
PEM120	120	14.64	23.28	36	45.6	72	96	108	120	132	156	216	228	264	312
PEM150	150	18.3	29.1	45	57	90	120	135	150	165	195	270	285	330	390
PEM200	200	24.4	38.8	60	76	120	160	180	200	220	260	360	380	440	520
PEM250	250	30.5	48.5	75	95	150	200	225	250	275	325	450	475	550	650
PEM300	300	36.6	58.2	90	114	180	240	270	300	330	390	540	570	660	780
PEM400	400	48.8	77.6	120	152	240	320	360	400	440	520	720	760	880	1040
PEM500	500	61	97	150	190	300	400	450	500	550	650	900	950	1100	1300
PEM600	600	73.2	116.4	180	228	360	480	540	600	660	780	1080	1140	1320	1560
PEM700	700	85.4	135.8	210	266	420	560	630	700	770	910	1260	1330	1540	1820
PEM800	800	97.6	155.2	240	304	480	640	720	800	880	1040	1440	1520	1760	2080
PEM900	900	109.8	174.6	270	342	540	720	810	900	990	1170	1620	1710	1980	2340
PEM1000	1000	122	194	300	380	600	800	900	1000	1100	1300	1800	1900	2200	2600
PEM1100	1100	134.2	213.4	330	418	660	880	990	1100	1210	1430	1980	2090	2420	2860
PEM1200	1200	146.4	232.8	360	456	720	960	1080	1200	1320	1560	2160	2280	2640	3120

Final discharge voltage per cell															
Discharge current and time when battery is fully charge at 20°C±5°C															
End voltage of 1.14V/Cell															
Cell Type	Rated Capacity (Ah)	hour					minute					second			
		8	5	3	2	1	30	20	15	10	5	1	30	5	1
PEM10	10	1.18	1.8	2.7	3.3	4.5	5.5	6.5	7	8	9.5	13	16	18	19
PEM20	20	3.36	3.6	5.4	6.6	6	11	13	14	16	19	26	32	36	38
PEM30	30	3.54	5.4	8.1	9.9	13.5	16.5	19.5	21	24	28.5	39	48	54	57
PEM40	40	4.72	7.2	10.8	13.2	18	22	26	28	32	38	52	64	72	76
PEM45	45	5.31	8.1	12.2	14.9	20.3	24.8	29.3	31.5	36	42.8	58.5	72	81	85.5
PEM50	50	5.9	9	13.5	16.5	22.5	27.5	32.5	35	40	47.5	65	80	90	95
PEM60	60	7.08	10.8	16.2	19.8	27	33	39	42	48	57	78	96	108	114
PEM70	70	8.26	12.6	18.9	23.1	31.5	38.5	45.5	49	56	66.5	91	112	126	133
PEM75	75	8.85	13.5	20.3	24.8	33.8	41.3	48.8	52.5	60	71.3	97.5	120	135	142.5
PEM80	80	9.44	14.4	21.6	26.4	36	44	52	56	64	76	104	128	144	152
PEM90	90	10.62	16.2	24.3	29.7	40.5	49.5	58.5	63	72	85.5	117	144	162	171
PEM100	100	11.8	18	27	33	45	55	65	70	80	95	130	160	180	190
PEM120	120	14.16	21.6	32.4	39.6	54	66	78	84	96	114	156	192	216	228
PEM150	150	17.7	27	40.5	49.5	67.5	82.5	97.5	105	120	142.5	195	240	270	285
PEM200	200	23.6	36	54	66	90	110	130	140	160	190	260	320	360	380
PEM250	250	29.5	45	67.5	82.5	112.5	137.5	162.5	175	200	237.5	325	400	450	475
PEM300	300	35.4	54	81	99	135	165	195	210	240	285	390	480	540	570
PEM400	400	47.2	72	108	132	180	220	260	280	320	380	520	640	720	760
PEM500	500	59	90	135	165	225	275	325	350	400	475	650	800	900	950
PEM600	600	70.8	108	162	198	270	330	390	420	480	570	780	960	1080	1140
PEM700	700	82.6	126	189	231	315	385	455	490	560	665	910	1120	1260	1330
PEM800	800	94.4	144	216	264	360	440	520	560	640	760	1040	1280	1440	1520
PEM900	900	106.2	162	243	297	405	495	585	630	720	855	1170	1440	1620	1710
PEM1000	1000	118	180	270	330	450	550	650	700	800	950	1300	1600	1800	1900
PEM1100	1100	129.8	187	297	363	495	605	715	770	880	1045	1430	1760	1980	2090
PEM1200	1200	141.6	204	324	396	540	660	780	840	960	1140	1560	1920	2160	2280

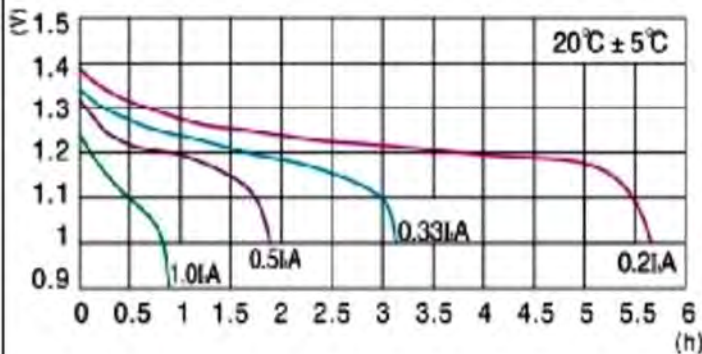
0.21A charge curves of Ni-cd medium rate battery



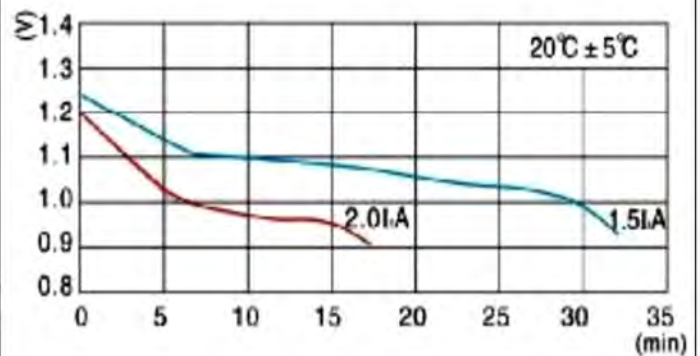
Different constant voltage charge curves of medium rate Ni-cd battery at normal temperature



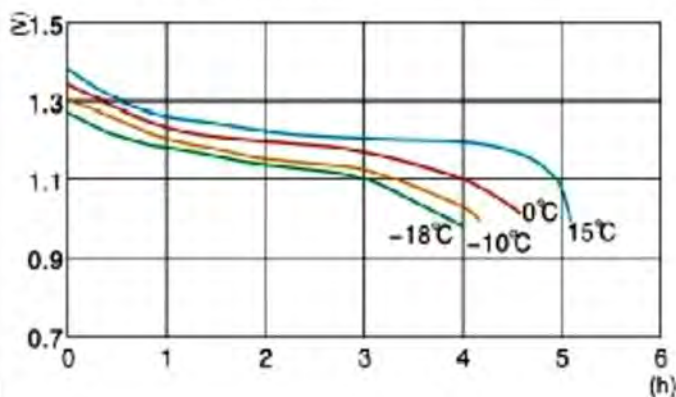
Discharge curves of medium rate Ni-cd medium rate battery



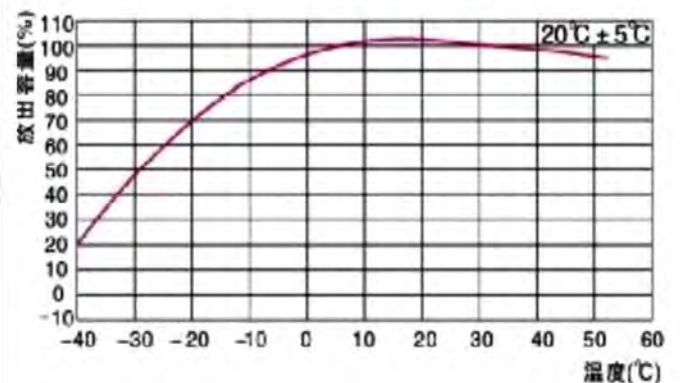
Discharge curves of Ni-cd medium rate battery



Discharge curves of Ni-cd medium rate battery at different discharge rates



Ni-cd medium rate battery output capacity related to different temperature



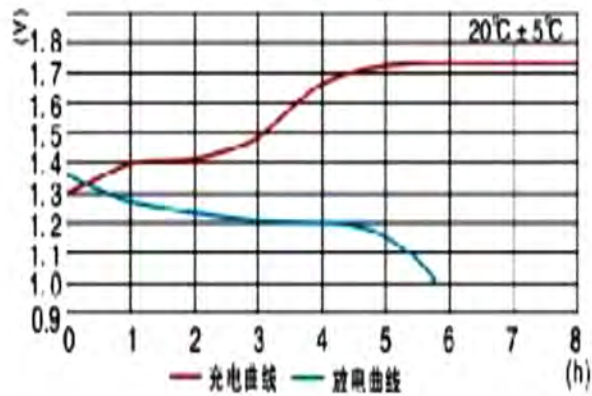
Final discharge voltage per cell																
Discharge current and time when battery is fully charge at 20°C±5°C																
End voltage of 1.0V/Cell																
Cell Type	Rated Capacity (Ah)	hour						minute					second			
		8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1
PEH10	10	1.26	2	3.3	4.8	6.4	9.5	12.5	16	20	23	31	46	52	63	69
PEH20	20	2.52	4	6.6	9.6	12.8	19	25	32	40	46	62	92	104	126	138
PEH30	30	3.78	6	9.9	14.4	19.2	28.5	37.5	48	60	69	93	138	156	189	207
PEH40	40	5.14	8	13.2	19.2	28.5	38	50	64	80	92	124	184	208	252	276
PEH50	50	6.3	10	16.5	24	32	47.5	62.5	80	100	115	155	230	260	315	345
PEH60	60	7.56	12	19.8	28.8	38.4	57	75	96	120	138	186	276	312	378	414
PEH70	70	8.82	14	23.1	33.6	44.8	66.5	87.5	112	140	161	217	322	364	441	483
PEH80	80	10.08	16	26.4	38.4	51.2	76	100	128	160	184	248	368	416	504	552
PEH90	90	11.34	18	29.7	43.2	57.6	85.5	112.5	144	180	207	279	414	468	567	621
PEH100	100	12.6	20	33	48	64	95	125	160	200	230	310	460	520	630	690
PEH150	150	18.9	30	49.5	72	96	142.5	187.5	240	300	345	465	690	780	945	1035
PEH160	160	20.16	32	52.8	76.8	102.4	152	200	256	320	368	496	736	832	1008	1104
PEH200	200	25.2	40	66	96	128	190	250	320	400	460	620	920	1040	1260	1380
PEH300	300	37.8	60	99	144	192	285	375	480	600	690	930	1380	1560	1890	2070
PEH400	400	50.4	80	132	192	256	380	500	640	800	920	1240	1840	2080	2520	2760

Final discharge voltage per cell																
Discharge current and time when battery is fully charge at 20°C±5°C																
End voltage of 1.05V/Cell																
Cell Type	Rated Capacity (Ah)	hour						minute					second			
		8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1
PEH20	20	2.5	3.92	6.4	9	12.4	17	24	30	35	44	56	70	92	104	108
PEH30	30	3.75	5.88	9.6	13.5	18.6	25.5	36	45	52.5	66	84	105	138	156	162
PEH40	40	5	7.84	12.8	18	24.8	34	48	60	70	88	112	140	184	208	216
PEH50	50	6.25	9.8	16	22.5	31	42.5	60	75	87.5	110	140	175	230	260	270
PEH60	60	7.5	11.8	19.2	27	37.2	51	72	90	105	132	168	210	276	312	324
PEH70	70	8.75	13.7	22.4	31.5	43.4	59.5	84	105	122.5	154	196	245	322	364	378
PEH80	80	10	15.7	25.6	36	49.6	68	96	120	140	176	224	280	368	416	432
PEH100	100	12.5	19.6	32	45	62	85	120	150	175	220	280	350	460	520	540
PEH120	120	15.625	24.5	40	56.25	77.5	106.25	150	187.5	218.75	275	350	437.5	575	650	675
PEH150	150	18.75	29.4	48	67.5	93	127.5	180	225	262.5	330	420	525	690	780	810
PEH200	200	25	39.2	64	90	124	170	240	300	350	440	560	700	920	1040	1080
PEH300	300	37.5	58.8	96	135	180	255	360	450	525	660	840	1050	1380	1560	1620
PEH400	400	50	78.4	128	180	248	340	480	600	700	880	1120	1400	1840	2080	2160
PEH500	500	62.5	98	160	225	316	425	600	750	875	1100	1400	1750	2300	2600	2700
PEH600	600	75	117.6	192	270	384	510	720	900	1050	1320	1680	2100	2760	3120	3240
PEH700	700	87.5	137.2	224	315	452	595	840	1050	1225	1540	1960	2450	3220	3640	3780
PEH800	800	100	156.8	256	360	520	680	960	1200	1400	1760	2240	2800	3680	4160	4320

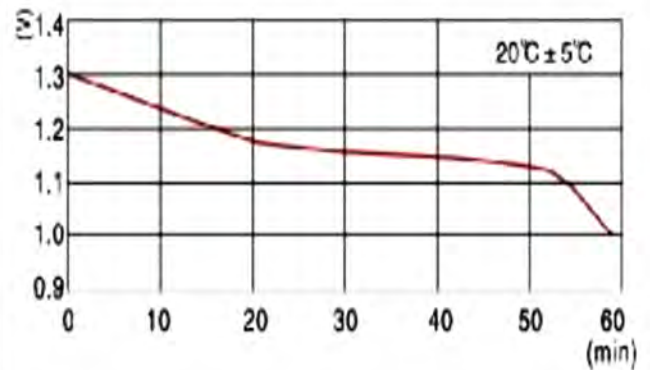
Final discharge voltage per cell																
Discharge current and time when battery is fully charge at 20°C±5°C																
End voltage of 1.10V/Cell																
Cell Type	Rated Capacity (Ah)	hour						minute						second		
		8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1
PEH10	10	1.22	1.94	3.1	4.4	6	7.5	10	13	16	17	20	32	35	42	45
PEH20	20	2.44	3.88	6.2	8.8	12	15	20	26	32	34	40.00	64	70	84	90
PEH30	30	3.66	5.82	9.3	13.2	18	22.5	30	39	48	51	60.00	96	105	126	135
PEH40	40	4.88	7.76	12.4	17.6	24	30	40	52	64	68	80	128	140	168	180
PEH50	50	6.1	9.7	15.5	22	30	37.5	50	65	80	85	100	160	175	210	225
PEH60	60	7.32	11.64	18.6	26.4	36	45	60	78	96	102	120	192	210	252	270
PEH70	70	8.54	13.58	21.7	30.8	42	52.5	70	91	112	119	140	224	245	294	315
PEH80	80	9.76	15.52	24.8	35.2	48	60	80	104	128	136	160	256	280	336	360
PEH90	90	10.98	17.46	27.9	39.6	54	67.5	90	117	144	153	180	288	315	378	405
PEH100	100	12.2	19.4	31	44	60	75	100	130	160	170	200	320	350	420	450
PEH150	150	18.3	29.1	46.5	66	90	112.5	150	195	240	255	300	480	525	630	676
PEH160	160	19.52	31.04	49.6	70.4	96	120	160	208	256	272	320	512	560	672	720
PEH200	200	24.4	38.8	62	88	120	150	200	260	320	340	400	640	700	840	900
PEH300	300	36.6	58.2	93	132	180	225	300	390	480	510	600	960	1050	1260	1350
PEH400	400	48.8	77.6	124	176	240	300	400	520	640	680	800	1280	1400	1680	1800
PEH700	700	85.4	135.8	217	308	420	525	700	910	1120	1190	1400	2240	2450	2940	3150
PEH800	800	97.6	155.2	248	352	480	600	800	1040	1280	1360	1600	2560	2800	3360	3600

Final discharge voltage per cell																
Discharge current and time when battery is fully charge at 20°C±5°C																
End voltage of 1.14V/Cell																
Cell Type	Rated Capacity (Ah)	hour						minute						second		
		8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1
PEH10	10	1.22	1.94	3.1	4.4	6	7.5	10	13	16	17	20	32	35	42	45
PEH20	20	2.44	3.88	6.2	8.8	12	15	20	26	32	34	40.00	64	70	84	90
PEH30	30	3.66	5.82	9.3	13.2	18	22.5	30	39	48	51	60.00	96	105	126	135
PEH40	40	4.88	7.76	12.4	17.6	24	30	40	52	64	68	80	128	140	168	180
PEH50	50	6.1	9.7	15.5	22	30	37.5	50	65	80	85	100	160	175	210	225
PEH60	60	7.32	11.64	18.6	26.4	36	45	60	78	96	102	120	192	210	252	270
PEH70	70	8.54	13.58	21.7	30.8	42	52.5	70	91	112	119	140	224	245	294	315
PEH80	80	9.76	15.52	24.8	35.2	48	60	80	104	128	136	160	256	280	336	360
PEH90	90	10.98	17.46	27.9	39.6	54	67.5	90	117	144	153	180	288	315	378	405
PEH100	100	12.2	19.4	31	44	60	75	100	130	160	170	200	320	350	420	450
PEH150	150	18.3	29.1	46.5	66	90	112.5	150	195	240	255	300	480	525	630	676
PEH160	160	19.52	31.04	49.6	70.4	96	120	160	208	256	272	320	512	560	672	720
PEH200	200	24.4	38.8	62	88	120	150	200	260	320	340	400	640	700	840	900
PEH300	300	36.6	58.2	93	132	180	225	300	390	480	510	600	960	1050	1260	1350
PEH400	400	48.8	77.6	124	176	240	300	400	520	640	680	800	1280	1400	1680	1800
PEH700	700	85.4	135.8	217	308	420	525	700	910	1120	1190	1400	2240	2450	2940	3150
PEH800	800	97.6	155.2	248	352	480	600	800	1040	1280	1360	1600	2560	2800	3360	3600

0.21A discharge curves of high discharge rate Ni-cd battery



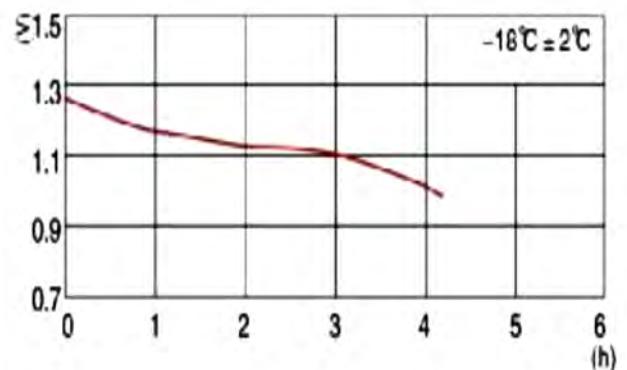
11A discharge curves of high discharge rate Ni-cd battery



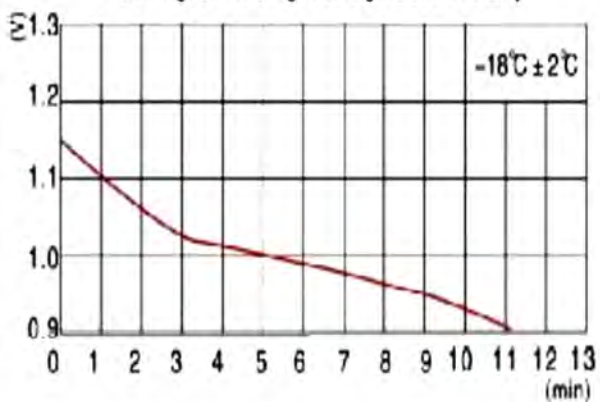
51A discharge curves of high discharge rate Ni-cd battery



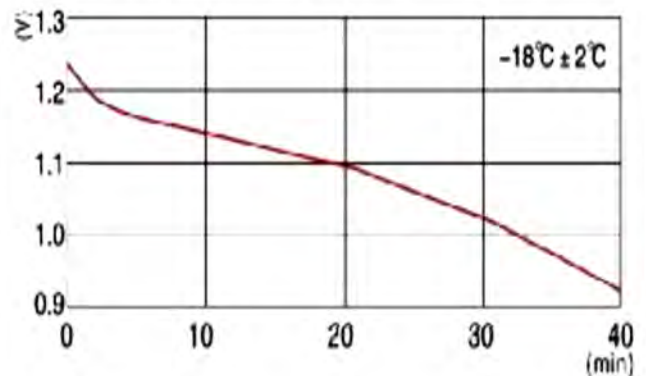
Discharge curves of high discharge rate Ni-cd battery



Discharge curves of high discharge rate Ni-cd battery



11A discharge curves of high discharge rate Ni-cd battery



زمان استاندارد تخلیه برای باتری نیکل کادمیوم ۵ ساعت بوده (C۵) که بایستی از باتری کاملاً شارژ شده (طبق استاندارد IEC ۶۰۶۲۳) تخلیه گرفته شود، تا باتری در دمای ۲۰ درجه سانتی گراد از ولتاژ اسمی ۱.۲ ولت به ازای هر سلول، به ولتاژ پایانی ۱ ولت به ازای هر سلول برسد.

Charge with constant VOLTAGE					
Current limitation 0.3It A					
Stand by			Buffer Operation		
float	1.40-1.42	V/Cell	Average value	1.55-1.70 v/cell	V/Cell
boost	1.55-1.70	V/Cell			V/Cell

Charge with constant CURRENT at 20°C±5°C	
Current limitation 0.3It A	
Standard charge	0.2 It A for 7-8 h
Boos charge	0.3 It A for 2.5h
followed by	0.2 It A for 2.5h
Trickle charge	0.001 - 0.002 A/Ah