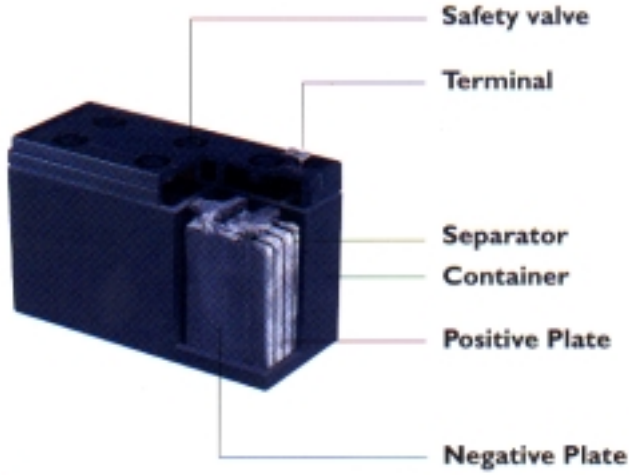


SEALED LEAD-ACID BATTERIES

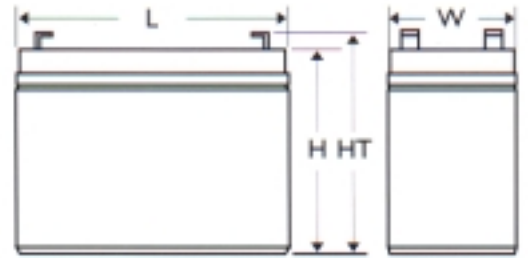


GENERAL TYPE

CONSTRUCTION



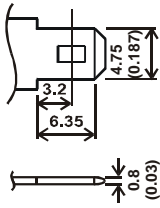
SPECIFICATIONS



TERMINAL TYPE

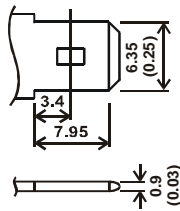
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F1



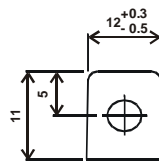
(FASTON TAB NO. 187)

F2



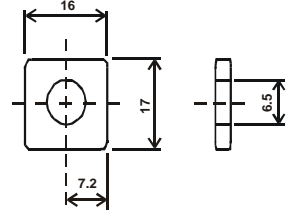
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F3

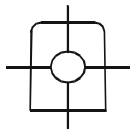


(M5 Bolts)

F4

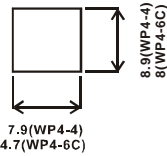


F5

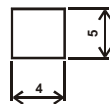


(M8 Bolt)

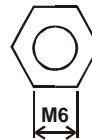
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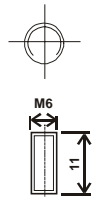
F7



F8



F9



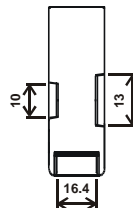
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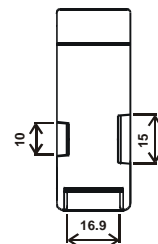
F11



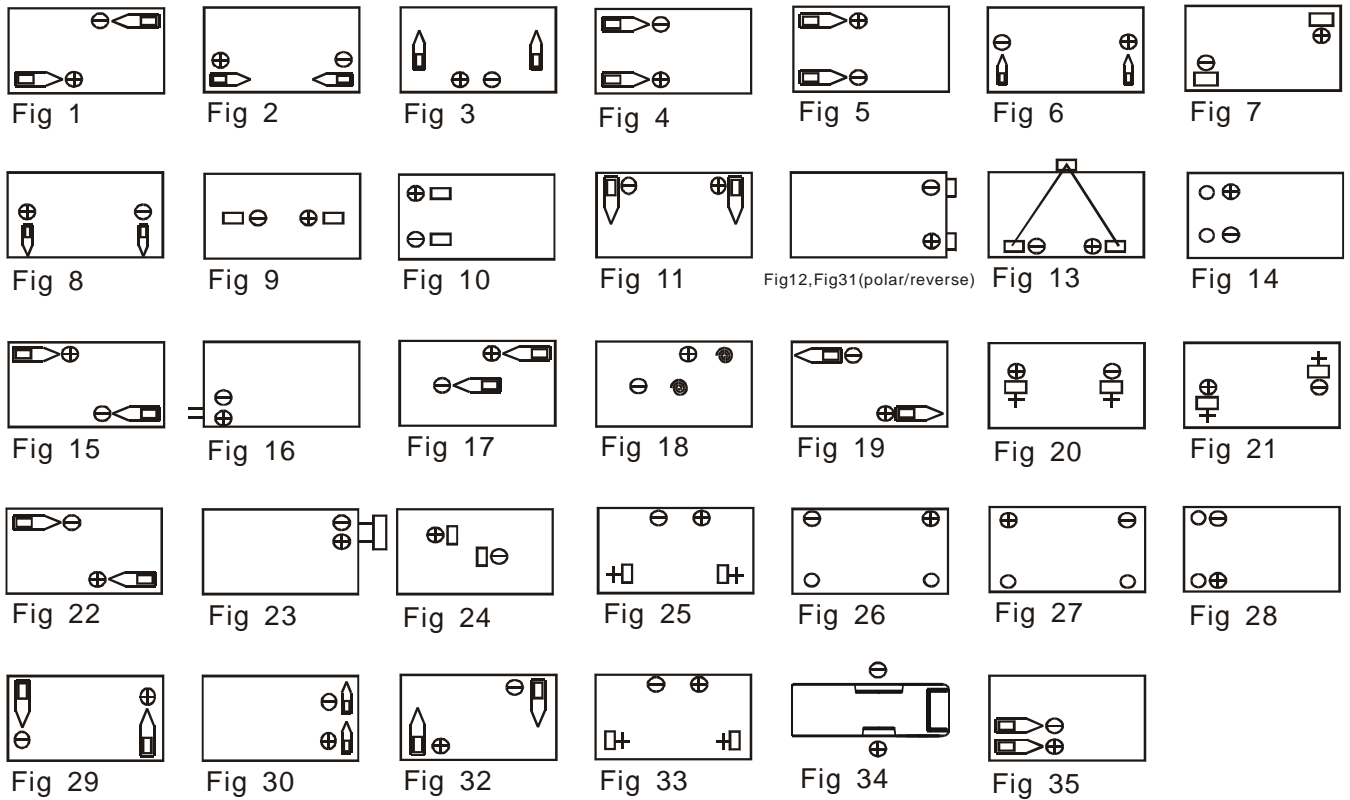
F12



F13



TERMINAL POSITION



GENERAL TYPE

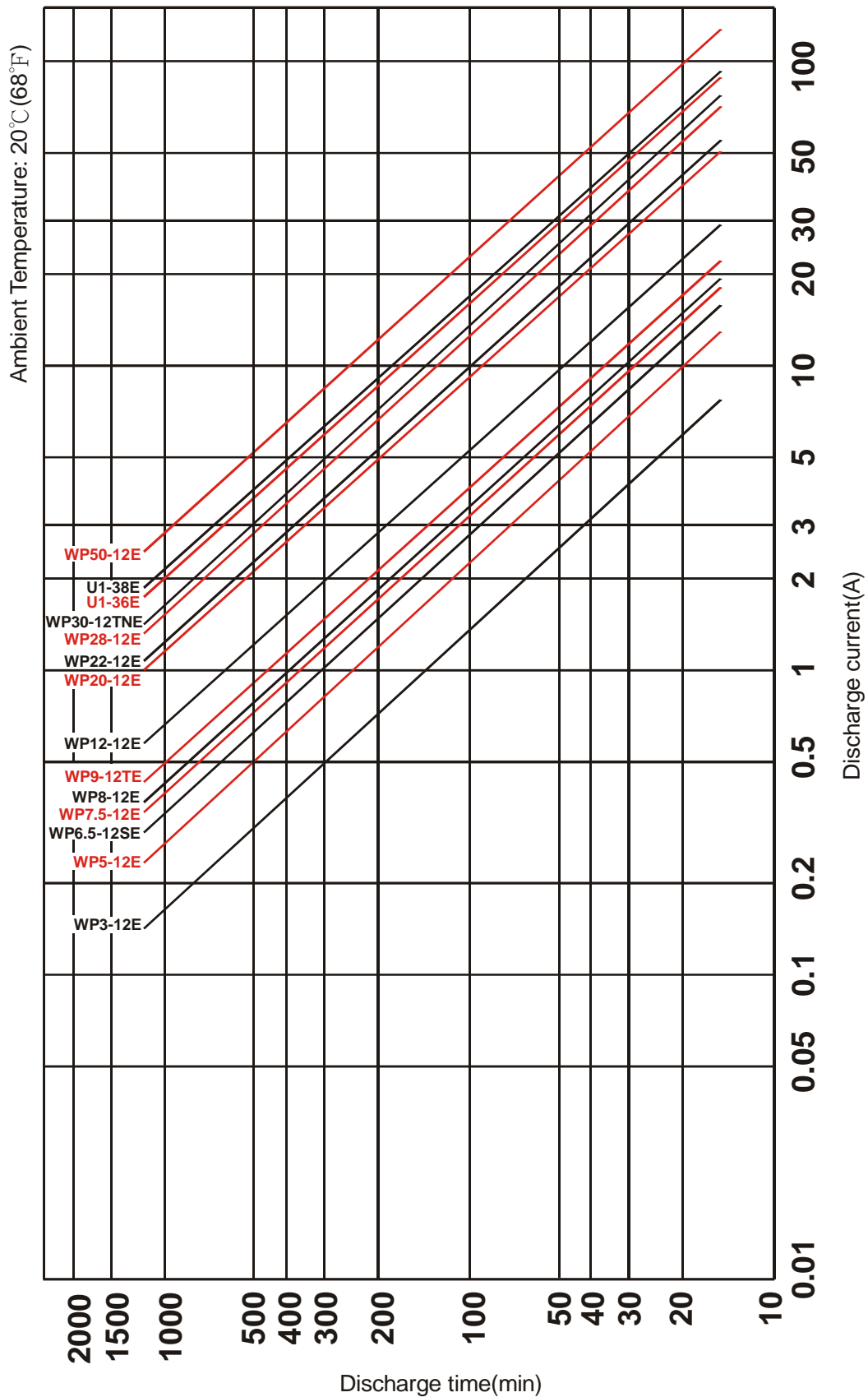
BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in	mm	lbs	kg	TERMINAL POSITION	TERMINAL TYPE
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1	in ±0.04	mm ±1				
WP1-2	2	1	1.22	0.94	2.52	31	24	64	2.52	64	0.23	0.105	10	F1
WP4-2	2	4	1.85	0.98	3.98	47	25	101	4.21	107	0.72	0.325	3	F1
WP6-2	2	6	1.97	1.34	3.94	50	34	100	4.25	108	0.98	0.444	11	F1
WP3-4	4	3	3.54	1.34	2.32	90	34	59	2.56	65	1.04	0.470	2	F1
WP4-4	4	4	1.89	1.42	4.69	48	36	119	4.69	119	1.21	0.551	12	F6
WP4.5-4	4	4.5	1.89	2.05	3.7	48	52	94	3.94	100	1.44	0.652	11	F2
WP9-4	4	9	3.98	1.73	3.74	101	44	95	4.02	102	2.61	1.187	3	F2
WP10-4	4	10	3.98	1.97	3.70	101	50	94	4.02	102	2.93	1.332	3	F2
WP1-6	6	1	2.01	1.65	2.01	51	42	51	2.17	55	0.59	0.268	1	F1
WP1.2-6	6	1.2	3.82	0.98	2.05	97	25	52	2.24	57	0.68	0.308	2	F1
WP1.5-6	6	1.5	3.82	0.94	2.05	97	24	52	2.28	58	0.74	0.336	2	F1
WP2-6	6	2	2.95	2.01	2.09	75	51	53	2.24	57	1.19	0.541	1	F1
WP623	6	2.3	1.73	1.46	2.95	44	37	75	2.95	75	0.77	0.350	31	F1
WP2.8-6	6	2.8	2.60	1.30	3.82	66	33	97	4.09	104	1.25	0.569	1	F1
WP2.8-6P	6	2.8	2.60	1.30	3.82	66	33	97	4.09	104	1.24	0.565	8	F1

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in	mm	lbs	kg	TERMINAL POSITION	TERMINAL TYPE
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1	in ±0.04	mm ±1				
WP2.8-6R	6	2.8	2.60	1.30	3.82	66	33	97	4.09	104	1.25	0.569	15	F1
WP2.8-6T	6	2.8	2.60	1.30	3.82	66	33	97	4.09	104	1.25	0.569	32	F1
WP3-6	6	3	5.28	1.34	2.36	134	34	60	2.60	66	1.52	0.692	2	F1
WP3.8-6	6	3.8	2.60	1.30	4.65	66	33	118	4.96	126	1.62	0.735	1	F1
WP3.8-6P	6	3.8	2.60	1.30	4.65	66	33	118	4.96	126	1.62	0.735	8	F1
WP4-6	6	4	2.76	1.85	3.98	70	47	101	4.21	107	1.79	0.812	1	F1
WP4-6C	6	4	2.76	1.85	4.01	70	47	102	4.13	105	1.85	0.838	7	F6
WP4-6VO	6	4.2	2.76	1.85	3.98	70	47	101	4.21	107	2.00	0.908	1	F1
WP4.5-6	6	4.5	2.76	1.85	3.98	70	47	101	4.21	107	2.00	0.908	1	F1
WP4.5-6C	6	4.5	2.76	1.85	4.01	70	47	102	4.13	105	2.00	0.910	7	F6
WP4.5-6S	6	4.5	2.76	1.89	4.02	70	48	102	4.21	107	2.07	0.940	1	F1
WP4.5-6W	6	4.5	2.76	1.85	3.98	70	47	101	4.21	107	2.02	0.917	1	F1
WP4.5-6WL	6	4.5	2.76	1.85	3.94	70	47	100	3.94	100	2.04	0.923	16	Wire
WP5-6	6	5	2.76	1.85	3.98	70	47	101	4.21	107	2.13	0.964	1	F1
WP5-6F	6	5	2.66	2.66	3.78	67.5	67.5	96	4.37	111	2.13	0.968	17	F1
WP5-6S	6	5	2.68	2.68	3.82	68	68	97	4.53	115	2.07	0.938	18	F10
WP7-6	6	7	5.94	1.34	3.70	151	34	94	3.94	100	2.89	1.312	2	F1
WP7-6A	6	7	3.86	2.20	4.05	98	56	103	4.04	102.5	2.96	1.347	19	F1
WP7-6S	6	7	4.57	1.97	3.62	116	50	92	3.90	99	3.05	1.385	1	F1
WP8-6S	6	8	5.94	1.34	3.70	151	34	94	3.94	100	3.15	1.430	2	F1
WP9-6A	6	9	3.82	2.20	4.65	97	56	118	4.65	118	3.66	1.66	19	F1
WP10-6	6	10	5.94	1.97	3.70	151	50	94	3.94	100	4.38	1.990	2	F1
WP12-6S	6	12	5.94	1.97	3.70	151	50	94	3.90	99	4.97	2.258	2	F1
WP13-6	6	13	4.25	2.76	5.51	108	70	140	5.51	140	4.79	2.179	35	F1-F2+
WP13-6W	6	13	4.25	2.76	5.51	108	70	140	5.51	140	4.86	2.208	16	Wire
WP20-6	6	20	6.18	3.27	4.92	157	83	125	4.92	125	8.83	4.006	20	F3
WP42-6	6	42	6.38	3.46	6.42	162	88	163	6.69	170	14.24	6.459	22	F2
WP120-6	6	120	9.49	7.01	7.20	241	178	183	7.20	183	43.10	19.590	21	F4
WP3-8	8	3	5.28	1.42	2.52	134	36	64	2.68	68	1.82	0.825	4	F1
WP3-8T4	8V(4V)	3	5.28	1.42	2.52	134	36	64	2.68	68	1.79	0.813	4	F1
WP0.7-12	12	0.7	3.78	0.98	2.44	96	25	62	2.44	62	0.82	0.371	23	Wire
WP0.7-12S	12	0.7	3.78	0.98	2.44	96	25	62	2.44	62	0.82	0.371	23	Wire
WP0.7-12WL	12	0.7	3.78	0.98	2.44	96	25	62	2.44	62	0.93	0.422	23	Wire
WP1.2-12	12	1.2	3.82	1.69	2.09	97	43	53	2.32	59	1.31	0.596	4	F1
WP1.5-12	12	1.5	3.82	1.69	2.05	97	43	52	2.28	58	1.38	0.628	4	F1
WP1.9-12	12	1.9	7.01	1.34	2.36	178	34	60	2.60	66	2.10	0.952	2	F1

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in	mm	lbs	kg	TERMINAL POSITION	TERMINAL TYPE
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1	in ±0.04	mm ±1				
WP2.3-12	12	2.3	7.01	1.34	2.36	178	34	60	2.60	66	2.33	1.060	2	F1
WP2.4-12L	12	2.4	7.01	1.34	2.36	178	34	60	2.68	68	2.11	0.960	5	F1
WP2.6-12	12	2.6	7.01	1.34	2.36	178	34	60	2.60	66	2.38	1.080	2	F1
WP2.8-12	12	2.8	5.24	1.30	3.82	133	33	97	4.09	104	2.55	1.160	2	F1
WP2.8-12S	12	2.8	2.60	2.60	3.82	66	66	97	4.09	104	2.55	1.160	3	F1
WP2.9-12T	12	2.9	3.11	2.20	3.90	79	56	99	4.21	107	2.59	1.176	6	F1
WP2.9-12TW	12	2.9	3.11	2.20	3.90	79	56	99	4.21	107	2.59	1.176	6	Wire
WP3-12	12	3	5.28	2.64	2.34	134	67	59.5	2.58	65.5	3.08	1.400	4	F1
WP3-12R	12	3	5.28	2.64	2.34	134	67	59.5	2.58	65.5	3.08	1.400	5	F1
WP4.5-12	12	4.5	3.54	2.76	3.98	90	70	101	4.21	107	4.02	1.828	3	F1
WP5-12	12	5	3.54	2.76	4.02	90	70	102	4.29	109	4.28	1.943	3	F1
WP6.5-12S	12	6.5	5.94	2.56	3.70	151	65	94	4.02	102	6.13	2.780	5	F1
WP7-12	12	7	5.94	2.56	3.70	151	65	94	4.02	102	5.52	2.510	5	F1
WP7.2-12	12	7.2	5.94	2.56	3.70	151	65	94	4.02	102	5.90	2.678	5	F2
WP8-12	12	8	5.94	2.56	3.70	151	65	94	4.02	102	5.80	2.635	5	F2
WP10-12S	12	9	5.94	2.56	4.40	151	65	112	4.67	118.5	7.34	3.329	5	F1
WP10-12	12	10	5.94	3.90	3.74	151	99	95	3.94	100	8.65	3.930	5	F1
WP11-12	12	11	5.28	3.15	6.34	134	80	161	6.50	165	9.94	4.520	20	F3
WP12-12	12	12	5.94	3.90	3.74	151	99	95	3.94	100	9.39	4.270	5	F1
WP13-12	12	13	8.50	2.76	5.51	216	70	140	5.51	140	9.61	4.36	24	F1-F2+
WP17-12I	12	17	7.13	2.99	6.57	181	76	167	6.57	167	13.82	6.283	25	F3
WP18-12	12	18	7.13	2.99	6.57	181	76	167	6.57	167	13.82	6.283	33	F3
WP18-12I	12	18	7.13	2.99	6.57	181	76	167	6.57	167	13.82	6.283	25	F3
WP20-12	12	20	7.13	2.99	6.57	181	76	167	6.57	167	13.75	6.240	33	F3
WP22-12	12	22	7.13	2.99	6.57	181	76	167	6.57	167	13.87	6.306	33	F3
WP22-12N	12	22	7.13	2.99	6.57	181	76	167	6.57	167	14.44	6.550	26	F8
WP22-12RN	12	22	7.13	2.99	6.57	181	76	167	6.57	167	14.44	6.550	27	F8
WP26-12	12	26	6.54	6.89	4.92	166	175	125	4.92	125	20.96	9.528	33	F3
WP26-12T	12	26	6.54	4.96	6.93	166	126	176	6.93	176	20.65	9.385	25	F3
WP28-12	12	28	6.54	6.89	4.92	166	175	125	4.92	125	21.55	9.794	33	F3
WP30-12T	12	30	6.54	4.96	6.93	166	126	176	6.93	176	21.30	9.680	33	F3
WP30-12TN	12	30	6.54	4.96	6.93	166	126	176	6.93	176	21.29	9.675	26	F8
U1-34	12	34	7.76	5.12	6.10	197	130	155	7.09	180	24.44	11.107	20	F4
U1-38	12	38	7.28	5.20	7.09	185	132	180	7.09	180	26.59	12.06	20	F4
U1-38B	12	38	7.28	5.20	7.09	185	132	180	7.09	180	26.59	12.06	27	F9

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in	mm	lbs	kg	TERMINAL POSITION	TERMINAL TYPE
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1	in ±0.04	mm ±1				
U1-38N	12	38	7.28	5.20	7.09	185	132	180	7.09	180	27.21	12.34	27	F8
U1-38RN	12	38	7.28	5.20	7.09	185	132	180	7.09	180	27.21	12.34	26	F8
WP45-12	12	45	7.79	6.54	6.73	198	166	171	6.73	171	31.04	14.109	25	F4
WP50-12	12	50	7.79	6.54	6.73	198	166	171	6.73	171	32.53	14.787	25	F4
WP50-12N	12	50	7.79	6.54	6.73	198	166	171	6.73	171	32.53	14.787	26	F8
WP65-12	12	65	13.78	6.54	6.85	350	166	174	6.85	174	51.81	23.55	25	F4
WP100-12	12	100	16.06	6.81	8.27	408	173	210	9.69	246	82.52	37.51	20	F5
WP18-24	24	18	7.13	5.87	6.57	181	149	167	6.57	167	26.84	12.20	25	F3
WP20-24	24	20	7.13	5.87	6.57	181	149	167	6.57	167	26.72	12.147	25	F3

HIGH RATE AND CYCLE USE TYPE



HIGH RATE AND CYCLE USE TYPE (FOR EV AND HIGH RATE DISCHARGE REQUIREMENTS)

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in	mm	lbs	kg	TERMINAL POSITION	TERMINAL TYPE
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1	in ±0.04	mm ±1				
WP5-12E	12	5	3.54	2.76	4.02	90	70	102	4.29	109	4.04	1.83	3	F2
WP5-12SE	12	5	5.51	1.89	4.01	140	48	102	4.25	108	4.39	1.99	3	F1,F2
WP8-12E	12	8	5.94	2.56	3.70	151	65	94	4.02	102	5.80	2.635	5	F2
WP9-12TE	12	9	4.53	3.66	4.41	115	93	112	4.41	112	8.20	3.72	20	Wire
WP10-12SE	12	10	5.94	2.56	4.40	151	65	112	4.67	118.5	7.34	3.329	5	F2
WP12-12E	12	12	5.94	3.90	3.74	151	99	95	3.94	100	9.99	4.540	5	F2
WP20-12E	12	20	7.13	2.99	6.57	181	76	167	6.57	167	13.75	6.24	33	F3
WP22-12NE	12	22	7.13	2.99	6.57	181	76	167	6.57	167	14.44	6.550	26	F8
WP22-12RNE	12	22	7.13	2.99	6.57	181	76	167	6.57	167	14.44	6.550	27	F8
WP28-12E	12	28	6.54	6.89	4.92	166	175	125	4.92	125	23.54	10.70	26	F9
WP28-12NE	12	28	6.54	6.89	4.92	166	175	125	4.92	125	23.54	10.70	26	F8
WP30-12TNE	12	30	6.54	4.96	6.93	166	126	176	6.93	176	21.29	9.675	26	F8
WP50-12E	12	50	7.79	6.54	6.73	198	166	171	6.73	171	32.53	14.787	25	F3
WP50-12NE	12	50	7.79	6.54	6.73	198	166	171	6.73	171	32.53	14.787	26	F8
U1-34E	12	34	7.76	5.16	6.14	197	131	156	7.09	180	24.44	11.107	20	F4
U1-36E	12	36	8.50	5.12	6.14	216	130	156	6.69	170	26.59	12.06	20	F4
U1-36BE	12	36	8.50	5.12	6.14	216	130	156	6.50	165	26.59	12.06	27	F9
U1-36NE	12	36	8.50	5.12	6.14	216	130	156	6.50	165	26.59	12.06	27	F8
U1-36RNE	12	36	8.50	5.12	6.14	216	130	156	6.50	165	26.59	12.06	26	F8
U1-38E	12	38	7.28	5.20	7.09	185	132	180	7.09	180	26.90	12.20	20	F4
U1-38NE	12	38	7.28	5.20	7.09	185	132	180	7.09	180	26.90	12.20	27	F8
U1-38RNE	12	38	7.28	5.20	7.09	185	132	180	7.09	180	26.90	12.20	26	F8
U1-38BE	12	38	7.28	5.20	7.09	185	132	180	7.09	180	26.90	12.20	27	F9
WP8-36E	36	8	11.97	3.98	3.90	304	101	99	4.06	103	20.78	9.422	14	F8

HIGH POWER TYPE (FOR TELECOMMUNICATION,EQUIPMENT,UPS)

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in ±0.04	mm ±1	lbs	kg	TERMINAL	TERMINAL
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1					POSITION	TYPE
KPH13-12	12	13	6.89	3.27	5.12	175	83	130	5.12	130	11.62	5.27	6	F8
KPH15-12	12	15	7.87	3.04	5.24	200	77.3	133	5.24	133	11.86	5.39	26	F9
KPH30-12	12	26	9.84	3.81	5.88	250	96.7	149	5.88	149	20.84	9.45	26	F9
KPH40-12	12	37	9.84	3.84	7.95	250	97.5	202	7.95	202	32.28	14.64	26	F9

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (15Min) (W/cell)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in ±0.04	mm ±1	lbs	kg	TERMINAL	TERMINAL
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1					POSITION	TYPE
WP1213W	12	13												
WP1214W	12	14	5.51	1.26	4.06	140	32	103	4.29	109	2.87	1.3	3	F2
WP1220W	12	20	5.51	1.51	3.74	140	38.5	95	3.98	101	3.11	1.41	5	F2
WP1221W	12	21	5.51	1.89	4.02	140	48	102	4.25	108	4.39	1.99	3	F1,F2
WP1228W	12	28	5.51	1.89	4.96	140	48	126	5.24	133	5.40	2.45	3	F1,F2
WP1234W	12	34	5.94	2.56	3.70	151	65	94	4.02	102	6.13	2.78	5	F2
WP12280W	12	280	10.24	6.69	8.07	260	170	205	8.27	210	11.81	26.03	20	F8
WP12390W	12	390	13.31	6.69	8.35	338	170	212	8.66	220	75.48	34.23	20	F8
WP12475W	12	475	13.58	6.69	10.75	345	170	273	11.06	281	103.64	47	20	F8

SPECIAL TYPE (FOR CAMCORDER · WIRELESS TELEPHONE · AND MEDICAL DEVICE)

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in	mm	lbs	kg	TERMINAL POSITION	TERMINAL TYPE
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1	in ±0.04	mm ±1				
WP0.5-4	4	0.5	1.54	0.55	1.97	39	14	50	1.97	50	0.14	0.065	9	F7
WP1-4	4	1	1.65	1.38	1.94	42	35	50	2.01	51	0.40	0.181	14	F11
WP0.5-6	6	0.5	2.24	0.55	1.97	57	14	50	1.97	50	0.21	0.095	9	F7
WP0.5-6W	6	0.5	2.24	0.55	1.97	57	14	50	1.97	50	0.22	0.099	13	Wire
WP623P	6	2.3	3.51	1.90	1.78	89	48	45	1.78	45	0.95	0.43		
WP635P	6	3.5	5.75	2.28	1.38	146	58	35	1.38	35	1.63	0.740		
WP1020P	10	2	4.76	2.91	1.38	121	74	35	1.38	35	1.33	0.605		
WP1023P	10	2.3	6.10	2.91	1.34	155	74	34	1.34	34	1.54	0.700		
WP2-12	12	2	5.83	0.79	3.54	148	20	90	3.54	90	1.68	0.762	12	F1
WP1220	12	2	7.91	0.98	2.40	201	25	61	2.40	61	1.60	0.724	34	F12
WP1250	12	2	5.63	0.91	2.52	143	23	64	2.52	64	1.43	0.650	34	F13
WP1250P	12	2	6.30	2.91	1.30	160	74	33	1.30	33	1.61	0.730		
WP1223A	12	2.3	7.17	0.91	2.40	182	23	61	2.40	61	1.50	0.682	34	F13

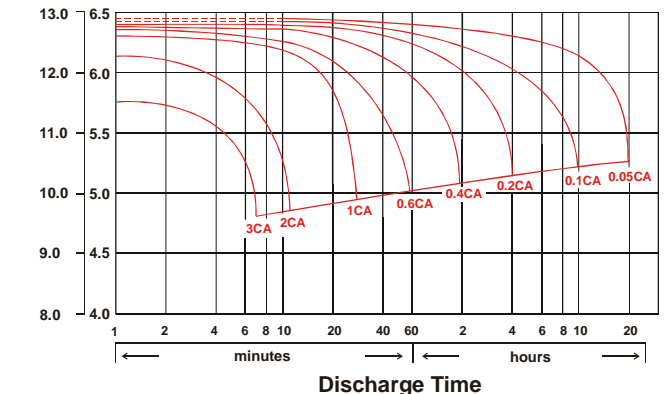
GENERAL TYPE (EXIT LIGHT)

BATTERY TYPE	NOMINAL VOLTAGE (V)	NOMINAL CAPACITY (20HR) (Ah)	DIMENSIONS						HT OVER TERMINAL		WEIGHT (APPROX.)		ASSEMBLY FIGURE	
			L	W	H	L	W	H	in	mm	lbs	kg	TERMINAL POSITION	TERMINAL TYPE
			in ±0.04	in ±0.04	in ±0.04	mm ±1	mm ±1	mm ±1	in ±0.04	mm ±1				
KP5-4	4	5	3.58	1.97	2.87	91	50	73	2.87	73	1.75	0.796	6	F2
KP8-4	4	8	3.58	1.97	4.02	91	50	102	4.02	102	2.49	1.131	6	F2
KP2.5-6	6	2.5	4.17	1.65	2.72	106	42	69	2.72	69	1.49	0.676	29	F1
KP5-6	6	5	5.31	1.97	2.99	135	50	76	2.99	76	2.63	1.195	29	F2
KP8-6	6	8	5.31	1.97	4.02	135	50	102	4.02	102	3.73	1.694	29	F2
KP2.5-12	12	2.5	4.17	3.35	2.72	106	85	69	2.72	69	3.01	1.368	30	F1

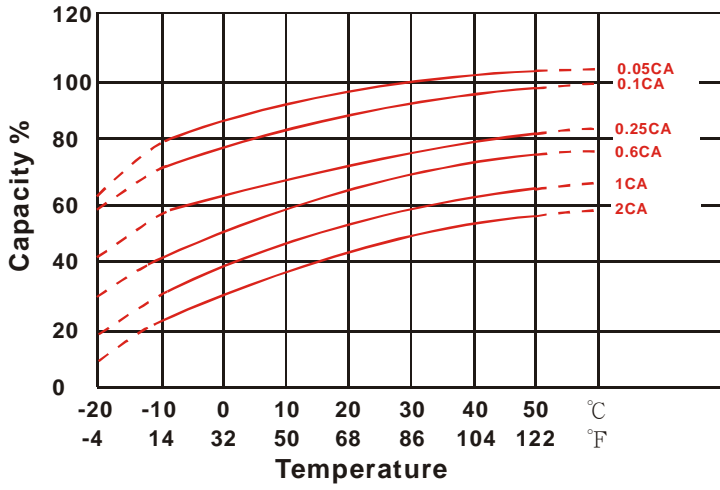
Discharge current and final discharge voltage

Discharge current (A)	Final discharge Voltage(V/cell)
$(A) \leq 0.2C$	1.75
$0.2C \leq (A) < 0.5C$	1.70
$0.2C \leq (A) < 1.0C$	1.60
$(A) \geq 1.0C$	1.40

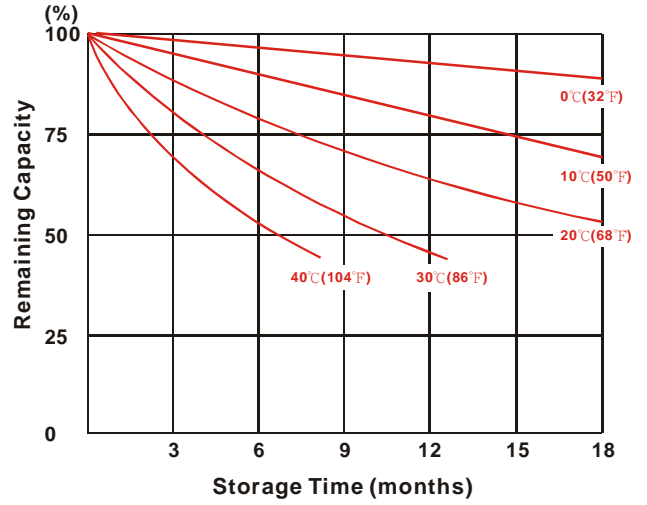
Discharge Time VS. Discharge Current (25°C)



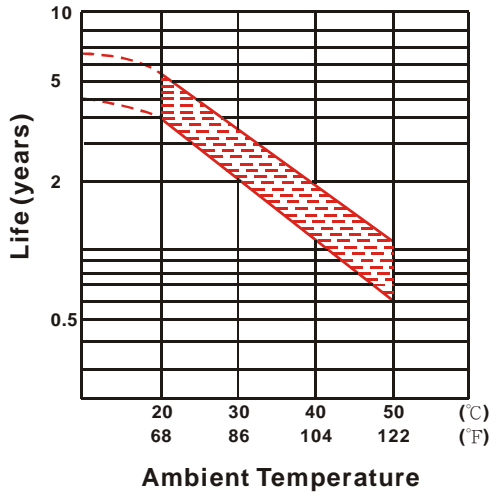
Effect of Temperature on Capacity 20°C(68°F)



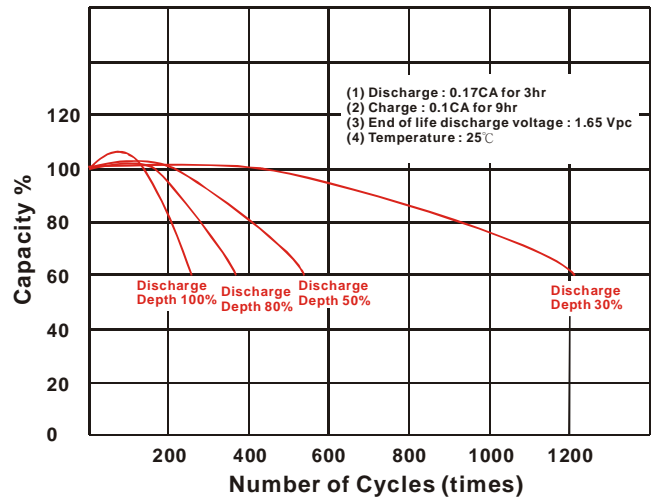
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



CHARGE METHOD

APPLICATION		STANDBY USE	CYCLE USE
Charge method		Constant voltage	
Setting voltage (v/cell)		2.25~2.30	2.40~2.50
Temperature factor		-3.3mV/ °C/cell	-5.0mV/°C/cell
Max. charge current (CA)		0.3	0.4
Charge Time	Discharge 100%	24h	16h
	Discharge 50%	20h	10h
Temperature (°C)		0~40	

CHARGE METHOD

High performance and long service life of LONG battery depend upon correct charging. Improper charging modes or inadequate charging equipment result in decreased battery life and/or unsatisfactory performance. Any of the conventional charging techniques may be used, but to obtain maximum service life and capacity, along with acceptable recharge time, constant current/constant voltage charging is recommended.

A charge quantity of 105-120% of the previous discharged quantity is needed for fully charging the battery. The charging voltage of battery decreases with increasing temperature and increases with decreasing temperature. At a temperature below 5°C (41°F) or above 35°C (95°F), the temperature compensation for charging voltage is necessary. At ambient temperature the compensation will not be necessary.

Overcharging Should be avoided : As a result of too high a charge voltage. excessive current will flow after reaching full charge, causing decomposition of water in the electrolyte and, hence, premature aging.

Undercharging Should also be avoided : If too low a charge voltage is applied, the charger current output will essentially stop before the battery is fully charged. This allows some of the lead sulfate to remain on the plates which will eventually reduce capacity.

RECOMMENDED RECHARGING INTERVAL & METHOD

STORAGE TEMPERATURE	RECHARGE INTERVAL & METHOD
Below 20°C (68°F)	9 months, charge for 16 hrs at 2.4V/cell
20°C-30°C (68°F-86°F)	6 months, charge for 16 hrs at 2.4V/cell
above 30°C (86°F)(avoid this storage condition)	3 months, charge for 16 hrs at 2.4V/cell

HANDLING INSTRUCTION

- ◆ Do not short the terminals.
- ◆ Do not place the battery near or in fires.
- ◆ Do not use the battery in a container or bag without proper ventilation.
- ◆ Operate at a temperature between -15 °C . To 50 °C . But for cycle use, the 5 °C to 35 °C temperature range is recommended.
- ◆ To properly store the battery, remove battery from equipment or charge and store in a dry and cool place.
- ◆ Immediately recharge after discharging.
- ◆ If sulfuric acid from the battery is spilled on skin or clothing, wash immediately with water. If acid comes in contact with eyes, flush with large amounts of water and immediately see a doctor.
- ◆ To obtain maximum life, the ripple current at the r.m.s current of the charger should be regulated to less than 0.1 C(A).
- ◆ Avoid mixed use of batteries. Different capacities, histories, or manufacturers of batteries may cause damage to the batteries or other equipment's.

KUNG LONG BATTERIES INDUSTRIAL CO., LTD.
廣隆光電科技股份有限公司

總公司 Taiwan Factory

南投市自立三路 6 號
NO.6,TZU-LI 3 ROAD, NANTOU CITY, TAIWAN R.O.C.
TEL: 886-49-2254777~8
FAX: 886-49-2255139
E-mail : klb@mail.klb.com.tw
HOMEPAGE : <http://www.klb.com.tw>

台北辦事處 Sales Office

中華民國台灣台北市民生東路一段 58 號 10 樓 B 座
ROOM B-1 10F NO.58 SECTION 1MIN-SHEN EAST
ROAD TAIPEI CITY TAIWAN R.O.C.
TEL : 886-2-2581-0413 / 886-2-2511-9918
FAX : 886-2-2511-9822 / 886-2-2537-6551
E-mail : klb77777@ms6.hinet.net
HOMEPAGE : <http://www.klb.com.tw>

越南廠 Vietnam Factory

Lo 1 Ap Cho Ben Luc Huyen Ben Luc Tinh Long An
TEL : 84-72-872213
FAX : 84-72-872350
E-mail : lelongvn@hcm.vnn.vn