



ES20-12C FT

SPECIFICATIONS

Nominal Voltage (V) 12V

Nominal Capacity

20 hour rate (1A to 10.50V)	20Ah
10 hour rate (1.9A to 10.50V)	19Ah
5 hour rate (3.4A to 10.20V)	17Ah
1C (20A to 9.60V)	11.33Ah
3C (60A to 9.60V)	8Ah

Weight Approx. 13.09Lbs. (5.95kg)

Internal Resistance (at 1KHz) Approx. 10 mΩ

Maximum Discharge Current for 5 seconds : 300A

Operating Temperature Range

Charge	-15°C (5°F) to 40°C (104°F)
Discharge	-15°C (5°F) to 50°C (122°F)
Storage	-15°C (5°F) to 40°C (104°F)

Charge Retention (shelf life) at 20°C (68°F)

1 month	92%
3 months	90%
6 months	80%

Charging Methods at 25°C (77°F)

Cycle Use : Charging Voltage 14.4 to 15.0V
Coefficient -5.0mv / °C / cell
Maximum Charging Current : 6A

Standby Use : Float Charging Voltage 13.50 to 13.80V
Coefficient -3.0mv / °C / cell

Case Material : ABS UL94 HB

Terminal : F6

Terminal Hardware Torque Value :

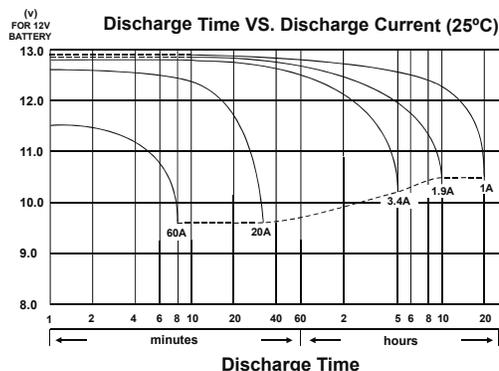
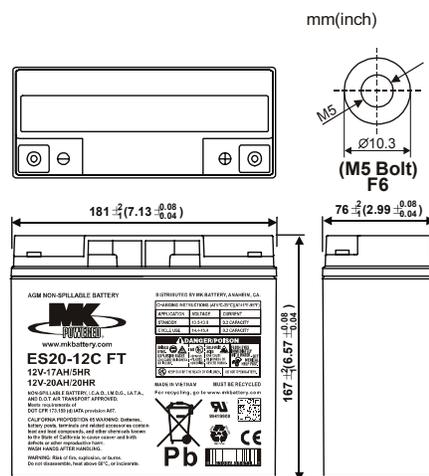
Recommended	M5: 5 Nm (51kgf-cm)
Maximum Allowable	M5: 6 Nm (61kgf-cm)

This battery is designed to meet International Standard ISO 7176-25 for wheelchair use.

Maintenance-Free Rechargeable Sealed Lead-Acid Battery



DIMENSIONS



MK Battery

1631 South Sinclair Street • Anaheim, California 92806

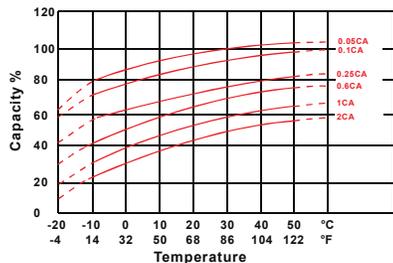
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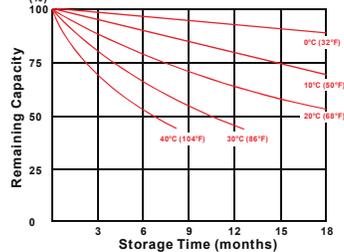


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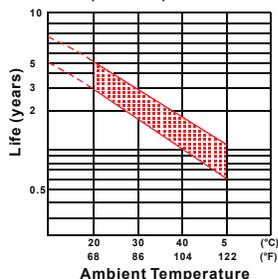
Effect of Temperature on Capacity 25°C (77°F)



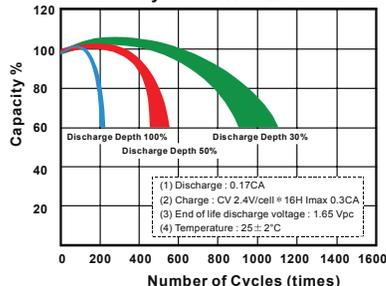
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25°C (77°F)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	110	128	139	146	148	150	152
10	min	78.7	88.8	96.2	101	102	103	105
15	min	68.2	75.5	80.4	83.5	84.3	85.2	85.9
30	min	35.5	37.9	40.6	42.2	42.7	43.1	43.6
60	min	22.2	23.2	24.0	24.7	24.8	25.2	25.5
120	min	12.2	12.7	13.0	13.5	13.6	13.7	13.8
180	min	9.53	9.88	10.1	10.3	10.4	10.5	10.6
240	min	7.63	7.93	8.12	8.27	8.32	8.38	8.46
300	min	6.65	6.88	7.00	7.10	7.13	7.18	7.24
600	min	3.87	3.98	4.07	4.13	4.15	4.19	4.22
1200	min	2.05	2.12	2.17	2.20	2.22	2.23	2.25

- Discharge Rates in Amperes to Various End Voltages at 25°C (77°F)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	69.6	75.4	79.1	82.3	83.7	85.1	87.6
10	min	46.7	49.9	52.4	54.6	55.5	56.5	58.2
15	min	35.4	38.1	39.8	41.3	41.9	42.6	43.5
30	min	18.9	20.4	21.5	22.4	22.7	23.1	23.6
60	min	11.1	11.7	12.2	12.6	12.7	12.9	13.1
120	min	6.25	6.47	6.61	6.73	6.77	6.82	6.89
180	min	4.73	4.90	5.00	5.08	5.11	5.15	5.21
240	min	3.88	3.97	4.04	4.09	4.11	4.14	4.17
300	min	3.41	3.48	3.53	3.57	3.58	3.60	3.62
600	min	1.97	2.00	2.02	2.04	2.05	2.06	2.07
1200	min	1.00	1.03	1.05	1.07	1.08	1.09	1.10

All data on the spec. sheet is an average value:

The tolerance range : $X < 6\text{min}$ (+15%~-15%), $6\text{min} \leq X < 10\text{min}$ (+12%~-12%), $10\text{min} \leq X < 60\text{min}$ (+8%~-8%), $X \geq 60\text{min}$ (+5%~-5%)

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