

1-2 CHARGE CHARACTERISTICS

PROPER CHARGING IS ONE OF THE MOST IMPORTANT FACTORS TO CONSIDER WHEN USING MAINTENANCE FREE SEALED LEAD ACID BATTERY PERFORMANCE AND SERVICE LIFE WILL BE DIRECTLY EFFECTED BY THE EFFICIENCY OF THE CHARGER SELECTED.

THE FOUR CHARGING METHODS ARE:

- ◆ CONSTANT VOLTAGE CHARGING
- ◆ CONSTANT CURRENT CHARGING
- ◆ TAPER CURRENT CHARGING
- ◆ TWO STEP CONSTANT VOLTAGE CHARGING

CHARGING AT CONSTANT VOLTAGE CHARGING IS THE MOST SUITABLE AND COMMONLY USED FOR CHARGING SEALED LEAD ACID BATTERIES. FIGURE SHOW THE CHARGING CHARACTERISTIC OF OUR BATTERIES WHEN CHARGED BY CONSTANT VOLTAGE CHARGER AT 2.25 VOLT/CELL WHEN THE INITIAL CHARGING CURRENT IS CONTROLLED AT 0.1CA.

THE CHARGE VOLTAGE OF THE BATTERY DECREASES WITH INCREASING TEMPERATURE AND INCREASES WITH DECREASING TEMPERATURE.

ACCORDINGLY CHARGING WITH GIVEN VOLTAGE REQUIRE INCREASED CHARGING CURRENT WHEN TEMPERATURE IS HIGH AND DECREASED CHARGING CURRENT AT LOWER TEMPERATURE. TEMPERATURE OF 5°C OR ABOVE 35°C.

HOWEVER, TEMPERATURE COMPENSATION OF CHARGE VOLTAGE IS NECESSARY.

THE TEMPERATURE COEFFICIENT IS:

- ◆ FOR CYCLE SERVICE : 5.0mV/ °C CELL
- ◆ FOR FLOATING SERVICE : 3.3mV/ °C CELL

APPLICATION	TEMPERATURE	SET. POINT	ALLOW RANGE	MAX. CHARGING CURRENT
CYCLIC	20°C	2.40 V	2.45V ~ 2.50V	0.4C
FLOATING	20°C	2.30 V	2.26V ~ 2.30V	0.4C

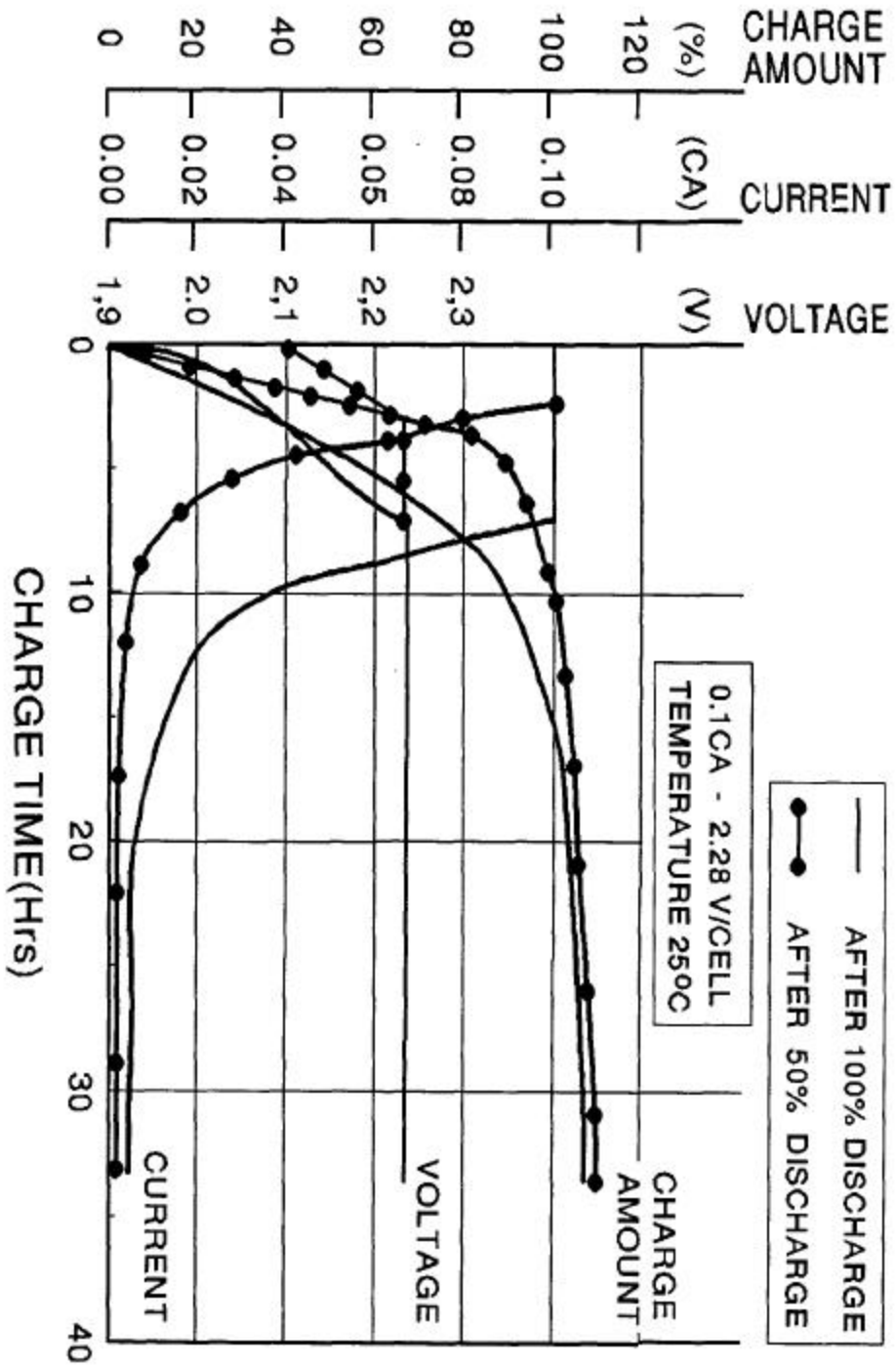
FLOATING VOLTAGE CHARGE

TEMPERATURE (°C)	0	10	20	25	30	35
VOLTAGE/CELL	2.37	2.33	2.30	2.28	2.25	2.23

CHARGING VOLTAGE COMPENSATION TEMPERATURE

- ◆ CYCLIC OPERATION : $V_c t = V_c. 25 - 0.005 (T-25)$
 - ◆ CYCLIC OPERATION : $V_c t = V_c. 25 - 0.0023 (T-25)$
- (V_c : CHARGING VOLTAGE, t = TEMPERATURE, $V_c. T$ = CHARGING VOLTAGE AT t°C)

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CHARACTERISTICS CURVE OF CONSTANT VOLTAGE CHARGE
(0.1CA / 2.28 V/CELL)