CLUB CAR UNIVERSITY

Long term solutions with small wheel fleets

GENERAL INFORMATION

- Store cars a minimum of six inches away from any wall and with 12 inches between cars. Install wheel bumpers on floors to reduce the possibility of damage to cars and building walls.
- Aisles should be a minimum of ten feet wide for easy entry and exit and for passing. Aisles may be slightly less, but this will increase the risk of damage to cars.
- Car spaces should be a minimum of five feet wide and ten feet long (please see dimensions of you specific car for details). Smaller spaces will increase the risk of damage to cars.
- Number all outlets and parking spaces so cars can be returned to the correct spaces.
- In a 120-volt, 60 Hz application, each charger should have its own dedicated 15 or 20 ampere separately protected (circuit breaker or fuse) single phase (#12 Cu) branch circuit. These circuits will be supported by their own neutral that runs back to the circuit panel. If you find it necessary to utilize both sides of the duplex receptacle, you must maintain an individual circuit for each charger (2 circuit breakers for one duplex receptacle) and the neutral must be oversized (#10 Cu). If Club Car chargers are not used, a consultation with the charger manufacturer for electrical specifications is required. All electrical wiring must be installed in accordance with the electrical codes for your area.
- Install surge arrestors on incoming AC power lines to help protect electrical/ electronic components in the charger and on the car from all but direct and very close lightning strikes.

GAS VEHICLES

Approved containers or tanks should be utilized to store gasoline away from the vehicle storage facility. Requirements vary by location, so please contact your local Fire Marshall or other appropriate authority to determine the codes applicable to your location.

The fuel storage or pumping device must be grounded to avoid electrical arcing caused by the build-up of static electricity. If the storage/pumping device is not grounded, the vehicle must be grounded to the pump prior to and during dispensing fuel into the vehicle.

CLUB CAR UNIVERSITY

Long term solutions with small wheel fleets

ELECTRIC VEHICLES

The AC electric cord has a grounding type plug and must be connected to a correctly rated ground fault circuit interrupter (GFCI) receptacle with arc flash protection. The receptacle must be installed and grounded in accordance with the National Electrical Code, local codes, and local ordinances.

Only connect ONE QuiQ charger to a single 15 A or 20A Circuit. Charging must be done in an area clear of flammables.

NOTE: A licensed electrical contractor should be used to determine the incoming service to the charging area.

Calculated amp requirement may be reduced depending on the number of service conductors or multi-phase configurations to the service panel.

SERVICE REQUIREMENT EQUATION FOR 120VAC SINGLE PHASE SERVICE: (# OF CARS X 12 AMPS) X 2

SAMPLE CALCULATION FOR 10 CAR FLEET: (10 X 12) = 120, 120 X 2 = 60 AMP SERVICE REQUIRED

SERVICE REQUIREMENT EQUATION FOR 230VAC THREE PHASE SERVICE: (# OF CARS X 12 AMPS) X 3

SAMPLE CALCULATION FOR 10 CAR FLEET: (10 X 12) = 120, 120 X 3 = 40 AMP SERVICE REQUIRED

SERVICE REQUIREMENT EQUATION FOR INTERNATIONAL CHARGERS (220 VAC/50HZ): # OF CARS X 9.5 AMPS

SAMPLE CALCULATION FOR 10 CAR FLEET: (10 X 9.5) = 95 AMP SERVICE REQUIRED

CLUB CAR UNIVERSITY

Long term solutions with small wheel fleets

RECCOMMENDED STORAGE FACILITY VENTILATION REQUIREMENTS

A minimum of five air exchanges per hour in the charging facility is recommended, based on historical data. The charging facility ventilation system must provide adequate fresh air to prevent the hydrogen gas concentration from exceeding 2% by volume.

CHARGE FINISH RATE: 5 AMPS

NUMBER OF CELLS ON 48V SYSTEM: 24

GASSING FLOW RATE =

.418 LITERS/AMP-HR-CELL X 4 AMPS X 24 CELLS = 50.16 LITERS/HOUR PER CAR

The Battery Gassing Flow Rate will determine the approximate hydrogen gas concentration level at any given period of time in an electric golf car storage facility. Battery gassing occurs during the charging cycle as hydrogen and oxygen are released from the battery as electric current is passed through the water in the battery cells. The flow rate is only at significant levels during the final portion of the charging cycle, and the length of this gassing period is dependent on the discharge level of the batteries. Thus, a deeper level of discharge leads to an increased length of battery gassing, with regards to time. The Club Car 48 volt electrical system has a charge finish rate of 5 amps, and a total of 24 cells. The published value for the amount of hydrogen/amp-hr per battery cell is 0.418 liters, which will be used to calculate the estimated gassing flow rate.

1.800.CLUBCAR | 1.706.863.3000 | clubcar.com