

Indoor Karting

Over the past ten to fifteen years, the European indoor karting market has been increasingly successful. This success can be partly attributed to the fact that true wheel-to-wheel, Grand Prix racing has had a much greater following in Europe than in the United States. Motor sports has had a rapid growth in popularity mostly fueled by the success of NASCAR, IRL, Champ Cars and Formula 1 racing. This new popularity has led many in the karting industry to the indoor karting market in the United States. While it would seem to be a logical and easy transition to bring the success of the European market to the American market, there are many distinct differences that have presented many new challenges.

The most distinct differences are in the karts themselves. In order to comply with insurance regulations, environmental standards, and national safety regulations, karts are required to be much safer and more durable. The European karts are a slightly modified version of real racing go-karts. These karts are very fragile and difficult to steer. In addition, they use metric parts which are not readily available in the United States.

The way companies compensate their employees is also significantly different. European companies do not pay their employees as much as in the U.S, and instead offer many different perks. These perks include group outings, and team building as a company event. The European market does not have as many amusement parks or family entertainment centers as are found in the United States. These differences make the financial details of the karting business distinctly different.

The design of the European karts alone limits the target market to adults only. The United States has many more amusement parks and family entertainment centers whose focus has been to include all age groups in order to meet the demands of families seeking alternative forms of entertainment. The trend toward “complete” entertainment centers that can provide a full day of activities, including food and retail service. We have found that the facilities that run profitably, longer term, have karts and a marketing focus that includes all age groups and not just corporate adult groups.

Formula K has been building several models of karts which give the appearance of a racing go-kart with the durability and handling to meet the needs of the U.S. Market. Formula K builds gas powered go-karts for all ages that can be run successfully indoors in a well ventilated buildings. However, it is very difficult to heat or air-condition a building that has the required ventilation needed to meet environmental standards. This does not even consider the fire standards for storage and refueling that an indoor facility would be required to meet.

Electric Karts solve many of the issues related to indoor karting: Noise, fueling, ventilation, climate control, and speed controls. Recharging is the one downside of electric karts. Electric karts need to recharge every ride or at least every 10 minutes of running. Cost of fuel is the upside. The energy required of an electric kart is 1/3 of the cost of gasoline or methanol.

WHY AN ELECTRIC KART?

Environmentally Friendly Karts = A Fresh, Wholesome Image

Many people talk about the environment these days, but few are actually doing anything about it. Now, communities and ongoing legislation are demanding changes. With the ecologically friendly electric karts, your customers are presented with a clean environment in which to experience all the speed and thrills of a conventional racetrack indoors, with none of the negatives of air and noise pollution. You can provide an upscale, exciting and healthy environment conducive to recreation for both the family and the business community. Electric karts are the future of racing.

Zero Emissions = Clean Air and Lower Operating Costs

Gas powered indoor karting facilities must bear the initial cost of an expensive air handling system that attempts to eliminate noxious and deadly gasses emitted by internal combustion engines. Beyond the initial costs, there are continuous increased operational expenses. The very system designed to refresh and replenish the inside air, actually removes seasonal climate controls. Track operators must balance these opposing efforts and the results are that the air in these facilities is still contaminated! For these reasons, it is often hard for gas powered operations to pass city inspections. Since, electric karts emit no air pollution whatsoever, they more easily meet building and fire code regulations.

Whisper Quiet Operation = Longer Operating Hours

When you first enter a conventional karting facility, the roar of the karts fills you with excitement – for about five minutes. After that, the loud, incessant droning is more likely to give you a headache. Customers there to enjoy the facility are driven away. There is no way to bring the noise level of gas engine karts down to an acceptable level. Electric karts, on the other hand, create almost no noise, except a pleasant high-pitched whine like an F-1 racecar. This translates to longer operating hours and fewer complaints from your crew, customers and neighbors. Electric karts can have a noise chip installed to simulate any type of racing vehicle.

Electrical Power = Reduced Costs and Elimination of Hazards

The operation of internal combustion karts requires fuels such as gasoline, propane, or methanol. The fuel must be purchased, delivered, stored, dispensed, and handled on-site. In many instances, local or state authorities will not allow this indoors and is regulated extensively on outdoor tracks. In addition, oils and lubricants must be properly handled and legally disposed. Electric karts use no gas or oil. This means no fumes, no spills, no air pollution, and none of the hazards or related costs associated with toxic liquids. Electric karts need no “re-fueling”, translating to fewer man-hours and fewer hazards. Automatic pit-lane charging brings the karts to full racing capacity in a matter of minutes, and the electricity used to run an electric kart costs considerably less than gasoline. Electric kart batteries are UL rated and fully recyclable.

Fewer Moving Parts = Lower Maintenance Costs

Electric motors have lower maintenance costs than gasoline engines. This translates into savings for you, as fewer repairs are needed. Our custom-built motors need no maintenance and run for years before needing a simple brush and bearing replacement. Combined with superior chassis, design, and strength, our karts give years of service. The use of dry lead acid batteries means there is no need to deal with messy, toxic acid. Our batteries are 30% more efficient and cheaper than any readily available on the market. Extremely long lasting, and the available power stays constant to provide thousands of exciting races. Just pennies per race, we have the most efficient cost saving battery. The belt drive never needs adjustment.

Faster Acceleration = More Thrills!

Electric karts cannot only match gas karts for top speed on straight-a-ways, their low-end power and quickness provide acceleration throughout the entire range of speeds. Instead of a “live solid axle”, electric karts have an unique, custom-built differential that amplifies the kart’s turning response, improves handling, engine performance and battery life. The resulting performance makes for a truly exhilarating racing experience.

Location, Location, Location = Less Expense, Better Demographics

You can operate an indoor go-kart track wherever the market is. Electric karts do not require a freestanding building and can operate in commercial locations that have higher visibility. They are quiet and clean enough to be a good neighbor even with a common wall within a building or strip mall. You can lease only the amount of space you actually need without the expense of renting the entire building. As a common tenant, you will not be

solely responsible for the building expenses such as repairs, maintenance, parking lots and grounds keeping. You can select a location that has other businesses providing access to your target market. In addition you can be a positive contribution to a community by leasing vacant property in a shopping center or strip mall. As an extension of an existing outdoor park, using electric karts as a mid-size indoor attraction adds value to your existing establishment. Not only will it keep customers at your business longer, it will help provide year round amusement that allows you to have pre-set hours regardless of rain and winter.

Year Round Pre-Set Hours= More Income, Better Staff

Year round business means your investment won't remain idle in bad weather. You can also offer yearround employment to attract a better-trained and more reliable staff. Your marketing and advertising investment can be extended to year-round business. You can become a destination attraction available for mixed uses and designed to create an exciting atmosphere.

Remote controlled, Safer, Saner and more Fun!

Our electric karts feature state-of-the-art radio controlled emergency shut-off and pit speed reduction. The radio control allows track personnel to control the track speeds before, during, and after a race. The pit lane speed allows the customers to enter and exit the charge rail grid safely. The system can also be used to penalize individual drivers, who have made intentional infractions of track rules, by remotely cutting their kart's power in half. Speeds are fully adjustable to suit your track design.

USER REQUIREMENTS

Whether an electric kart is used in a dedicated karting facility or as a mid-size attraction in a Family Entertainment Center, the requirements remain constant and nominal.

Electricity supply for charging: 100 amp Zivan charger

” 30 amps @ 230v single phase

” 60 amps @ 110v single phase

” 15 amps @ 480 3 phase

Charger systems:

Dimensions: 21 1/2" wide x 10 3/4"long x 5 1/2" thick

Charge Ratio: The chargers have on average a 1:1 ratio on a 5 minute ride with a maximum run time of 15 minutes at high speeds.

Floor Chargers: Installing auto charge pick-up in every kart reduces the operating expenses and decreases turnaround time.

Pit Requirements for Auto Charging Systems:

Floor Chargers: Floor chargers require a pit lane with pit islands to direct the karts over the charging plates.

Dimensions: 48" wide x 80-96" long x 6" tall, depending on the type of karts you are using. You need one segment per kart. Chargers begin operating when it senses the 48V connection from the kart.

Chargers will bring the batteries up to a full charge and turn off automatically. When not in use the battery charger will continue to turn on and off as needed to equalize all the batteries.

Plug in Chargers Plug in chargers do not require cement pit lanes for charging

Dimensions: Same as floor chargers.

Plug in chargers have the advantage of using one charger to alternately charge 2 cars which can cut the cost of charging units by half.. However, if you do not use a complete row of karts during a ride, you will need to move the karts up in line and reconnect them in order to accommodate returning karts. This problem can be minimized with an angled pit design with several lanes. Plug in charging allows you to use karts with different dimensions in the same lane while floor chargers require same dimension kart spacing in order to match the floor plates.

Indoor Facility Requirements

Track dimensions: A minimum of 10,000 square feet with support column spacing between 20 and 25 ft in order to receive the maximum use of the floor space. The concrete needs to be as smooth as possible to reduce tire wear and improve the overall ride.