FREQUENTLY ASKED QUESTIONS

Q: What size track would you recommend?
A: Ideally, a track should be at least 800 feet long in order to accommodate 20 go-karts. In addition, the pit should be designed for possible expansion in order to support a maximum of 40 go-karts.

Track size is usually affected by some limiting factor such as money, amount of land available, or market size. Other factors that need to be considered include:

What types of amusement facilities are in your area?

What does your competition plan to build?

Are you trying to build a facility that is nicer than an existing competitor, or are you trying to build a facility so nice that it would be hard for a competitor to build right down the street?

The size of your track should be determined by the size of your market and population. Your overall design should allow for future expansion. The track size will also be determined by the types of karts you wish to run.

Q: How long and how wide should I build my go-kart track?
A: We recommend track lengths between 600 and 1,200 feet long and 25 feet wide, including the rail system.

Shorter tracks can be made to work in tight spaces. Longer tracks can be built if money is no object. However, a longer track with only a few karts running will not be as much fun because the karts will spread out and be unable to race. The length of the track should be relative to the number of go-karts you intend to use. Our general ecommendation is forty linear feet per go-kart.

The tires for the rail system must rest 100% on the track surface. So, a track 25 feet wide leaves 19 to 21 feet of driving surface. Turns do not need to be wider than straight-a-ways since drivers will stay close to the inside rail in an effort to drive the fastest line possible.

Q: How much money do I need to make from this ride in order to make the investment profitable?
A: Typically, you should consider your total ride capacity during the three busiest evening hours to determine the track size needed.

A go-kart track with 10 go-karts cannot generate a million dollars in a normal operating season. Likewise, there is no point in building a track with 40 go-karts if you will only use ten. A go-kart track is usually one of several attractions that you will build now or in the future. If you are investing a million dollars in a market that will only support 10 karts it will be hard to make your investment pay.

10	3	6	$4.00	100		
Karts	Hours	Rides per Hour	Per Ride	Days	=	$72,000

While this calculation serves as one method to help match ride capacity to investment, it is not to say that the track will only make $72,000 annually. You will obviously be open more than 3 hours per day and usually more than 100 days. If the market can support more karts or more rides, it may be possible to make this investment profitable.

Q: How many square feet of land do I need for a track?
A: Assuming a twenty-five foot wide track is built using a ten foot radius for right hand turns, and a fifteen foot radius for left hand turns, you can use the following rule of thumb:

1. A 700-foot track can be built in an area of 140-feet by 220-feet or about 31,000-square feet or a little less than an acre (not counting any required setbacks). A 1,000-foot track needs about 45,000-square feet.

2. The more unusual the shape of the property, the more square footage you need to build the track.

3. Bridges can make it possible to build a longer track in less square feet. However, you must allow for the banks on the up and down grade, or you need to build retaining walls which are very expensive.

Q: How much does a good track cost?
A: A good track costs approximately $125 – $150 per linear foot including the rail system, fencing, queue lines, pit area, and light poles with lights.

This does not include bridges or covering over the pit area, service garage, ticket sales building or go-karts.

Q: What is the best track design?
A: There is truly no best go-kart track design. Virtually every rack we have designed has been different.

Some manufacturers will help you design a track to fit your available space and size needs. Some manufacturers send out a generic plan and let the customer alter it to fit their needs. Formula K Raceways, Inc. will custom design a track to fit your available space and budget. We will also take into consideration the future need to expand the number of go-karts that can run on the track, your overall plans for other rides, and their best combination and location.

NOTE: The track design must be compatible with your go-kart. Do not design
your track and then look for a go-kart that will work. There are certain things a go-kart will not do:

A go-kart will not start from a complete stop on a hill of more than five degrees without either being pushed or causing damage to the engine clutch. A go-kart will not turn as well to the left as to the right. A go-kart will not turn “on a dime”.

A go-kart will not compensate for the driving errors of customers. Certain turns or Combinations of turns create driving hazards and operational problems that can be avoided with a properly designed track. Banking of the turns, or supers, should not exceed a ten percent grade or two and one-half feet over a twenty-five foot width. It is very difficult for an employee to straighten out a go-kart that has spun out on a high banked turn.

Q: Which direction should a track run?
A: Typically, a track should be designed to run clockwise because the drive wheel is on the left on most go-karts. However, it can be designed to go both ways.

Note: There are some go-karts in the industry that turn better to the left. There are also some that do not turn well in either direction. While a Formula kart can work in both directions, it turns much better to the right. We can, either design the go-kart to turn to the left by driving the right wheel instead of the left or increase the radius on all turns to allow the kart to run in both directions.

Q: What radius should my turns be?
A: A 180-degree right-hand turn on a clockwise operating track can be as small as a ten foot radius.

A 180-degree left-hand turn on a clockwise operating track should not be less than a fifteen foot radius.

A 90-degree turn, either right or left, can be as little as a six-foot inside radius as long as the next turn goes in the opposite direction. If the next turn is not in the opposite direction, there should be a twenty-five foot straight-a-way between the turns. Remember that a tight radius on an asphalt track tends to cause the asphalt to fall apart. When making turns between 90 and 180 degrees, there must be enough straight-a-way to allow the go-karts to sort themselves out before the next turn if the next turn goes in the opposite direction. Otherwise, there will be excessive spinouts from the go-kart drivers who have the inside line on the first turn diving down for the next turn and cutting off the drivers who had the outside line on the previous turn. There are only so many turns that you can build into any given length track. Too many turns on a short track will cause operational problems, such as spinouts and excessive crashes.

Note: All the inside radii are figured to the inside edge of the concrete and assume that the tire and steel barrier will increase that inside radius by about two feet.

Q: How many go-karts do I need?
A: The optimum number of go-karts should match the market as well as your budget.

A minimum of ten go-karts is needed for any market that will support a go-kart track. For most tracks, the maximum number of go-karts that will run efficiently at one time is twenty. In a large market area, up to forty go-karts may be necessary to meet demand by employing double pitting to shorten loading time.

Q: How much does insurance cost?
A: Insurance typically costs about $1200.00 per go-kart. After the first year, it is based on your claims history and your gross sales.

Q: How fast do your go-karts go?
A: The more relevant question should be how slow can you make the go-karts go at full throttle.

You can always make the go-kart faster. However, customer safety and most insurance companies dictate that they not exceed twenty-two miles per hour. The key for the customer is not how fast it goes, but how fast it feels. In other words, how much acceleration does your kart have? A Formula K go-kart is geared to run about twenty- two miles per hour at full throttle. Most other go-karts in the industry do not have the proper gear ratio to run twenty-two miles per hour at full throttle and as a result, feel slower to the customer.

Q: How many parking spaces do I need?
A: Generally, two parking spaces per go-kart are needed to run at full capacity.

This allows enough parking to get a maximum number of go-karts running as long as the customer has money.

Q: Should I install pit islands?
A: No. Pit islands cause a wide variety of operational and safety issues.

Safety Issues:
Someone will eventually hit them head-on, because many customers cannot make the last minute decision of which lane to drive into.

Someone will get their foot caught between the rail of the go-kart and the island causing them to trip and fall.

Pit islands create a false sense of security. Both employees and customers will neglect to watch for incoming go-karts, and customers will feel it is safe to exit the go-kart immediately after they stop and get hit from behind.

Operational Issues:
With a pit island, drainage becomes an issue. A track should be level from front to back and not on a hill. Water should naturally drain to the inside of the track.

Moving go-karts from one line of the pit into another is a problem. If a customer wants a particular kart, a pit island would require employees to move all the karts in front of it.

While a Formula K Two Seat go-kart is the same width as a Single-Seat go-kart, most other Two-Seat go-karts are over one foot wider. Likewise, future go-karts may be different widths.

Q: Where should I locate my pits?
A: If possible, we like to locate the pits at the top of a turn. We try
to never locate the pits in the middle of a straight-a-way because it makes the separation of the pits from the track very difficult. In a turn, most of the go-karts will be down on the inside of the track in a single file, and they will only drive into the pits when directed to do so.

Q: What size steel should be used for the rail system?
A: The size and thickness of the steel varies depending on the weight and speed of the go-karts.

Gas powered go-karts would require at least 1/2 inch by 6-inch steel. Electric karts would require 5/8 inch by 6-inch steel, and larger, faster karts such as Sprint Cars and Stock Cars require 5/8 inch by 8-inch steel. Forty foot pieces of steel are not recommended because they are too heavy and too hard to handle. A 20 foot piece of steel weighs between 200 and 332 pounds.

Q: Why does the steel need to be so heavy?
A: The purpose of the rail system is to prevent injury to the customer and to prevent damage to the go-kart.

This is done by keeping the go-karts on the track. On impact, a go-kart exerts about 12,000 pounds of force on the barrier. The weight of heavy gauge steel and the cushioning of car tires is needed to absorb the impact of a go-kart traveling at a speeds of up to twenty miles per hour. Any steel that is less than half-inch thick will bend on impact and will eventually look like a pretzel. In addition, the heavier steel prevents the barrier from lifting on impact, keeping the kart from going over or under the rail system.

Q: Which is better to use in building a go-kart track: Concrete or Asphalt?
A: Concrete.

We recommend a concrete track because it lasts longer and will not break-up in the turns like asphalt. In addition, since concrete is white instead of black, it is about forty degrees cooler in the sun, which dramatically affects tire wear and is more comfortable for employees running the track.

But I can do an asphalt track much cheaper!
I am in the asphalt business!
I have a friend who will do the work cheap!

When comparing the relative cost of asphalt versus concrete, get an asphalt quote specifying the following:

The asphalt must be laid in two pulls: A two-inch base coat and at least one-inch of fine topcoat.

The track must be paved twenty-four feet wide so that the tires for the barrier system lie 100% on the track.

The track must have at least a six-inch gravel base for the paving machine to pave over, and the track must be sealed with an asphalt sealer to prevent damage to the asphalt when fuel or oil is spilled on the track.

Disadvantages of an asphalt track
Asphalt tracks will need to be sealed and repaired every two to three years. This alone will cause the cost of the asphalt track to meet or exceed the cost of a concrete track.

The black surface of an asphalt track is forty degrees hotter than the white surface of concrete. This greatly affects tire wear, since tires are affected by heat.

The tire barrier will gradually sink into the asphalt, and it will be hard to maintain a constant rail height.

The turns on an asphalt track tend to deteriorate and are usually replaced with concrete after a few years.

Gas and oil spills cause asphalt to fall apart.

Even if you decide on asphalt, you should have a concrete pit area to reduce the heat for your customers and employees.

Cost Comparison:

	Concrete	**Asphalt**
Base Cost:	$2.50-2.75 per sq. ft formed and poured	$2.00-$2.25 per sq. ft. including a 6 inch gravel base
	No sealing cost	$0.20 per sq..ft. for asphalt sealing. This must be done before opening and again every few years thereafter
Rail system:	$18.00 per linear ft. for each side of the track	$20.00 per linear ft. for each side of the track
	Pins can be set in the concrete to secure the tires	A separate system is needed to fasten tires, because the pins cannot be set in asphalt

Q: What are your concrete specifications?

A: Five and a half to six bags limestone-air entrained with fiber mesh. Crushed stone can be used, but it is not as good as limestone.

The concrete should be poured with as few cold joints as possible and no fiber expansion joints. All cold joints must be pinned.

The following day or two, depending on the weather, the concrete should be cut with a saw to a depth of one-inch every fifteen feet and down the middle.

Use one or two power trowels, depending on how many yards of concrete you pour at one time. Bring the cream up twice before leaving some of the trowel marks in the surface on the second pass.

DO NOT BROOM FINISH ANY PART OF THE TRACK. Lightly broom finish the pit walkways only and the surface just before the pit. Remember, it is very expensive to make a rough track smooth, but there are many inexpensive methods to make a track that is smooth a little rougher so the tires bite better.

Q: How many lights do I need?
A: Generally, a go-kart track needs eight to twelve 1,000 watt metal haylights on four poles, depending on the competing light in the area.

Q: How many people does it take to run a track?
A: This depends on how busy you are, how many go-karts you have, whether or not you have a bridge, and if you are utilizing a remote control system. In general, it will take two to five people.

Q: Why do I need remote controls for my go-karts?
A: Most facilities install remote control units to reduce accidents and protect employees.

We believe remote systems will eventually become an industry standard. Insurance companies will eventually reduce rates if we can eliminate or reduce injuries. Many tracks find they can reduce labor costs, and more importantly, they can control customers when they are entering the pit area.

On electric karts, Kartrol can be used to adjust the speed of the karts to three different speed settings and stop with a push of a button. This gives the operator the ability to change the ride to accommodate slower or faster drivers as necessary, allowing you to make the karts run faster for team events, or slower for inexperienced drivers.