# Aluminum Vs. Steel Gates

A GateCrafters.com aluminum gate has the features necessary for DIY installation, easy maintenance, safety, and longevity!

## Rust




### Aluminum

Aluminum does not rust. This will never be an issue.

The Rust Store (an independent source with no affiliation to GateCrafters.com) explains the difference between aluminum and steel oxidation in their article. Does Aluminum Rust?

### Steel

When in contact with water and oxygen, steel will rust. If salt is present, for example, near the coast, the iron will rust more quickly.

Galvanization is usually used to help prevent this but galvanization often fails at seams, holes, and joints, where the coating is pierced.

Also when building gates, moisture and oxygen are trapped inside the hollow tubing of the gate when it is welded together and the galvanization does not protect the inside. So eventually the gate will rust from the inside out.

Rust build-up can also cause failure by forcing apart adjacent parts (pickets or frame) - a phenomenon sometimes known as “rust smacking.”

# Safety

## Aluminum

Light weight aluminum will not make a significant impact when coming in contact with a person or object.

## Steel

Steel is approximately double to triple the weight of aluminum. This heavy structure being swung open and closed across your driveway posses a serious hazard to anyone or anything that gets in its way.

Stopping an object with such mass will be exponentially harder.

# Automation

## Aluminum

For the same reason as safety, aluminum is easier to automate. The light weight will allow the operator motor to work less and last longer.

The lighter weight will not put as much strain on the gears to stop the gates once it is in motion. Aluminum has more resilience, so if there is an obstacle and the gate hits it, there will be less likelihood of bending which would permanently damage the mountings and measurements needed for a gate opener to function without binding.

## Steel

Steel's weight is a damaging factor to most gate openers. First, even if you are only opening the gate a few times a day, you will have to use a high priced commercial gate opener if you want to make the lifespan of the motor vs. the cost ratio to work out in your benefit.

Also the gears, which are already at a disadvantage because of the length of gates, will be jarred extra hard to start and stop the motion of the heavy object.

# DIY Installation

## Aluminum

Aluminum is light weight and easy to drill. Lifting the gate in place won't take a team of laborers; any home owning couple can easily lift the gate into its necessary position.

Also when installing the gate along with installing the gate opener and accessories, drilling the gate will need to be done. With aluminum, one bit should be sufficient.

## Steel

The heavy weight of the gate already makes installation a formidable task. Have you ever tried to position heavy oak shelves or drop a steel door and frame into place? Imagine that weight times 10 and that is what you will be tangling with.

It's worth it to pay someone to come in and take that headache off your hands. Then installation is a pain too. Drill bits are made of steel and drilling steel on steel does not go quickly and eats through bits.

# Coating

## Aluminum

Select Gate Crafters driveway gates can be ordered with a specialized durable powder coating that creates a thin veneer on the gate as a protectant.  Not all powder coating is the same. And the powder coating reacts differently to different surfaces.

The provider of this specialized powder coating line recognizes the need for rare touch ups, so we offer exact color match pens that adapt to the aluminum for a well matched touch up result.

## Steel

Steel cannot be painted for a convenient paint touch up system. Often it has to be powder coated to prevent exposure to the elements (which can result in rust). Standard powder coating looks nice when finished, however, on most types of steel if the item, like a driveway gate, gets scratched or chipped there is no good fix (*and what fence, car, or other piece of equipment do you have left outside each day that doesn't have a scratch? None*).

## Steel (continued)

Because it is not paint, but a layer of pigments, standard powder coating gets heated into a shell around the steel. For standard powder coating on steel there really isn't a successful way to touch up the gap left by the cracked off shell.

If you purchase a steel (or wrought iron gate) you will need to inspect the gate regularly because chips left unchecked may lead to rust that can spread and ultimately, "rust smacking."

# Material Resilience

### Aluminum

6061-T6 wrought aluminum is a high-grade alloy with a yield strength of about 35,000 pounds per square inch. For comparison, this is much stronger that "mild steel" which has a yield strength at about 20,000 to 30,000 pounds per square inch.

6061-T6 wrought aluminum is used for the purpose of durability and resiliency, providing a quality dent resistance and lasting beauty.

A key test for gates is their resilience. Gates should be able to absorb pressure and then return to its original shape.

To resist snapping, 6061-T6 alloy has a high level of pliability, much like an airplane wing. When pressure is exerted on the material it yields to the pressure, and when the pressure is released, it regains its original form.

### Steel

Denting and bending steel is a common problem and a costly one as well. In order for steel not to dent, it has to be thinner to prevent it unlike aluminum which the grade makes the difference between denting and resuming shape.

Steel doesn't resume shape; the best you can hope for is if the gauge is thick enough to withstand the dent.

And of course as the gauge goes up so does the cost and weight, and the safety and ease of installation goes down. The other cost that gets overlooked with denting is the result on level brackets for gate automation.

Brackets that hold automation have to be placed in exact positions and on level. Denting tends to shift this placement resulting in broken parts and many headaches. Weight is also a factor, the momentum of steel acts to increase the force when the gate is hitting something, so that effectively lowers the yield strength even more.