

# Manufacturing Mobility for Disabled Animals



A Profile of  
**Eddie's Wheels**  
for Pets



*An engineer with a soft spot for four-legged friends, Ed Grinnell has built more than 10,000 wheeled carts for disabled animals since he started the business in 1999 in the basement of his house. Today his staff of 10 full-time employees works in a shop that Grinnell designed and built for high productivity and energy efficiency. Features include an active/passive solar heating system and an Atlas Copco rotary screw air compressor.*

**This story begins with a Doberman pinscher named Buddha. As is the case with so many dogs, Buddha was not simply a pet but a full-fledged member of the family. When she lost the use of her rear legs at the age of 10 due to spondylosis and disc disease, her owners, Ed and Leslie Grinnell, wanted to offer her an opportunity to heal.**

When Ed looked into options to help his dog regain mobility, he quickly found himself dissatisfied with what was available commercially at that time. An engineer by profession and a dog lover at heart, Ed decided to build his dog a cart (in effect, a wheelchair for a dog) that would enable her to get around and restore a decent quality of life.

“What Ed built for Buddha was clunky by today’s standards,” says Leslie, “but it allowed her to walk in the woods and fields, harass the woodland critters, and go wading in the swamp. It gave her mobility.”

What started with a one-off solution to help a beloved dog has grown into Eddie’s Wheels For Pets, a thriving manufacturing business based in Shelburne Falls, Massachusetts that serves animals and their owners around the world. Eddie’s Wheels For Pets enables disabled dogs to do many of the things they enjoy: run in the grass or on the beach, wade in a lake or river, and play with their human and dog friends.

### **Advanced Erector Set**

Ed explains that every cart he makes is precision engineered and custom built to match an individual animal’s body mechanics, disability and function. He describes his system for building custom carts as an advanced erector set.

“We have created many standardized parts and designs that can be assembled to make a cart as big or small as the pet requires,” Ed explains. “Sturdy construction and a custom fit are the reasons why most pets adapt easily to using our carts.”

High quality components are used throughout, including lightweight aluminum bar stock, machined fittings, stainless steel hardware, special closed-cell foam padding and pneumatic tires. Each cart is individually drawn, bent, welded, padded and assembled according to each specific animal’s measurements and physical needs. They are even gender-specific so dogs can relieve themselves while in the cart.

Ed explains that the design of a basic cart can be modified to match the level of an animal’s disability, range of activity and type of terrain. “Depending on the animal’s needs we can make carts for front leg disability, counter-balanced carts for animals with weak forelimbs, and carts for amputees or quads.





Carts designed for rehab include adjustable features that let the animal use a leg if it works. As the animal's condition improves, the cart can be adjusted to provide less assistance."

A recent addition to the product line is therapy stands for animal chiropractic services. "We have a special interest in alternative healthcare for pets," Ed explains. "Animal rehab is a growing specialty. It's really coming into its own."

While some components that go into Eddie's Wheels For Pets products could be bought at a hardware store, key manufacturing processes were invented by Ed Grinnell to solve specific problems. "When we wanted to weld the special expanded foam padding we use, we were told it wasn't possible," Ed smiles. "I developed a process that uses infrared radiant heat in a special oven to weld the expanded foam padding. Only the padding absorbs the heat, and the foam stays welded."

All product design and development is done in-house, and Ed says he's always looking for something better. "We've done things that our competitors never did. We forced them to get better. We keep coming up with new solutions to answer customer requests."

Among those solutions are the "pool noodle" that provides buoyancy so an animal can swim and skis that improve mobility in snow. Animals and their owners can even make a fashion statement with custom cart fin-

ishes including bright purple powder coat and multi-color metallic flake.

While most finished products are shipped direct, some customers choose to pick up their carts at the factory. "If customers can come in, we can make fine adjustments right away while the dog is in the cart," says Leslie. The office is equipped with rubber flooring that provides dogs extra traction as they become accustomed to their new wheels, and behind the facility there is a grass yard where they can test their mobility outdoors.

## Shop Upgrades

In 2006, Ed determined that his company's continued growth required upgrades to manufacturing capabilities. In particular, a new CNC milling machine system would enable his work force to perform processes in-house that previously had to be subcontracted to a machine shop. To take full advantage of the capabilities of the new milling machine, Ed knew he would also need to upgrade his compressed air system.

"I did my own research on air compressors," Ed explains. "I contacted manufacturers in the region and went to see compressors at work in 25 other machine shops. I wanted an efficient, reliable, trouble-free, complete package. Based on what I observed, I made my decision to upgrade to an Atlas Copco rotary screw compressor."



## Did You Know?

Atlas Copco was the first compressed air company to receive the Class Zero certification for absolutely oil-free air production.

Ed selected an Atlas Copco GX4-150AFF, a full-feature, all-in-one compressor system that offers the volume and quality of air he requires and the energy efficiency he demands. "I'm big on conserving energy," Ed insists. "Take the solar heating system I designed for the building. It works so well, if the sun is shining there's no need for the furnace to run, even in the dead of winter. One of the best features of the Atlas Copco compressor is energy efficiency. The start draw on the twin cylinder reciprocating compressor we replaced was 19 amps. Our Atlas Copco screw compressor starts up with no load. The energy savings alone would make the compressor pay for itself."

An additional benefit of the compressor upgrade is the substantial drop in noise inside the shop. "When the Atlas Copco compressor is pumping air as hard as it can, you can lean on it and carry on a conversation. It's that quiet. With our old compressor, you wouldn't even be able to talk to someone in the room."

Ed's compressed air system upgrade also included piping the entire shop for air. "I designed an air piping system that uses all soldered copper pipe and has drops at every workstation. We built the entire system ourselves and it's working great."

## Reflecting on a Successful Project

Ed says he invested a lot of time preparing for this project. "I started in September, wrote it all down and figured it all out. When I discussed the project with my financial advisor I wasn't sure I could afford to do it, but he showed me that I couldn't afford not to do it. By year's end, we were up and running flawlessly."

The cost of the whole project came to about \$60,000, including the CNC milling machine, air compressor, a phase converter to generate our own three-phase power, and the air piping system. Energy savings and productivity improvements give the project a 20-month payback. The noise reduction is a bonus.

"This all started as a hobby," Ed says. "I still like to think of it as a hobby out of control rather than a manufacturing business."



Ed Grinnell and his wife Leslie have two disabled dogs - Daisy, a Dachshund and Sweet Pea, a Staffordshire terrier. Not surprisingly, both have a custom-made set of Eddie's Wheels.

These friendly animals greet visitors to the office. "Daisy is the company mascot," says Leslie. "She loves to show off her driving expertise when customers bring their dogs to our shop for measurements and fittings."

There are two other dogs in the office as well. "Autumn is a disabled Doberman," Leslie says, "but she doesn't require a cart. Then there's Toby, a Doberman/Rottweiler mix who is the only normal dog here."

**To learn more about Eddie's Wheels for Pets, check out their website.**

[www.eddieswheels.com](http://www.eddieswheels.com)

