A Green Solution for Your Public Transportation System
Gomaco Trolley Company, in Ida Grove, Iowa, began building trolley cars in 1982 when the company received its first contract from the United States Department of the Interior. The contract called for the construction of two open-style, double-truck electric trolley cars. Historical accuracy and attention to detail were key factors in the production of the trolleys. They were to be built as replicas of the J.G. Brill trolley, the 1597 to 1600 series, built in 1902. In 1984, the trolleys were delivered to Lowell, Massachusetts. In 1987, a third car was delivered to Lowell.

The success of those three trolleys has led to others of differing trolley styles all across the United States, including: Denver, Colorado; Little Rock, Arkansas; Mount Pleasant, Iowa; St. Louis, Missouri; Memphis, Tennessee; Philadelphia, Pennsylvania; Charlotte, North Carolina; Tampa, Florida; and Fresno, Glendale and Los Angeles, California.

Gomaco Trolley Company built its first replica Birney trolley in 1999, delivering the finished trolley to its new home in Tampa in February 2000. Eight more replica Birney trolleys were custom built for HART, Tampa’s public transportation system. The Tampa cars were the first to feature an air conditioning system, a nice feature in the warm and humid weather of Tampa. Gomaco has also custom built five replica Birney trolleys for Little Rock’s Central Arkansas Transit Authority, three for the Charlotte Area Transit System and one for the Memphis Avenue Transit Authority. Each of the Birney trolleys can be replicated to the history of its city. They can be custom built to match the exact number of windows, seating style and arrangement, exterior paint colors and more. Or, if Birneys are new to your city, Gomaco Trolley will help you customize a unique trolley to match your city’s own distinct style.

Whether you’re introducing trolleys to your city for the first time or bringing a piece of modern history back to life, a Gomaco Trolley is your unique choice. Several studies have proven that trolleys are a practical, fun, and environmentally-friendly “green” alternative for mass transit that are preferred by the commuting public.

Gomaco Trolley replicates the authentic look of the Birney, while creating a state-of-the-art machine that is fully compliant with all Federal Transit Administration (FTA) and Americans with Disabilities Act (ADA) regulations. Built-in safety features include e-stops at operator locations and integrated safety door locks ensuring the car will not move if a door is open.

The Birneys are controlled by the Gomaco proprietary K35G IGBT (insulated gate bipolar transistor) controller with PLC (programmable logic controller) system management. The K35G operates on one-third of the power of the K35. It offers ease of maintenance and considerable reduction in preventative maintenance hours, resulting in long-term cost savings due to fewer wearable and/or moving parts. The system’s regenerative braking reduces brake shoe and wheel wear. Programmable speed control capabilities in restricted speed areas is possible with track transmitters, radio transmitters or with GPS. The K35G also has system diagnostics recording for troubleshooting analysis and documentation.
Introducing the Double E Hybrid Propulsion System—A Green Solution for Your Public Transportation System

Gomaco Trolley Company introduces the totally green Double E hybrid propulsion system. The Double E system is dual powered with electric over electric. The trolley’s power can be obtained from both the standard overhead power line or from the unique GTC Battery-Powered System. Overhead power collection devices can be the traditional pole or a pantograph. The GTC Battery Powered System will charge itself while the trolley is running on the overhead line. The trolley can switch power systems on-the-go with the new “powered poles” for raising and lowering the overhead pole or pantograph. If it’s not possible to install overhead wire, power stations under the track can be installed to remotely transfer energy from a ground source to the stationary car’s power collection unit.

This new battery pack offers consistent performance. It performs at the highest level no matter how much charge is left in the battery. Even after extended use, there are no voltage sags that you would normally find when using lead acid batteries.

The Double E system was created to be easily maintained. Trolley operators only have to look at their console to check the amount of energy in the car’s battery pack. Consumption is shown through a zero to 10 bar graph, with a 10 indicating a fully-charged battery pack. The battery pack can be charged and balanced during an “overnight” charge in as little as three hour’s time.

The technology of the new Double E system also allows a laptop computer to interact with the battery system. The laptop allows you the ability to monitor the health of each cell of the batteries in the pack. A log can be created of the battery pack’s status while the trolley is in operation. This information allows technicians to troubleshoot and monitor the overall health of the battery pack, in general.

The K35G proprietary Gomaco controller allows a variable input power range from 300 to 950 volts to accommodate the Double E hybrid system.

Three choices are now available for powering your Gomaco trolley: by overhead line; the Double E hybrid propulsion system; or the self-contained, battery-powered system.

State-of-the-Art Controls with the K35G–

The trolley operator’s station is where old-time craftsmanship and the latest technology available merge together to create a station for the operator that is both easy and safe to operate. First of all, the station has been designed for excellent visibility inside and out of the trolley, while keeping all of the operating controls within easy reach for the operator. Gomaco’s Birneys can be equipped with a K35G IGBT (insulated gate bipolar transistor) controller and PLC (programmable logic controller) system management to control speed and monitor power consumption. It allows the cars to travel at any speed between zero to 35 miles per hour and it will maintain any speed for an indefinite amount of time. For example, if you want to creep the trolley car at 0.5 miles per hour along the entire route, it’s possible with the K35G. It includes a system diagnostics recording that can be used for troubleshooting analysis and documentation. And, with its GPS compatibility, the car location and speed can be tracked from rider kiosks or for dispatcher’s monitoring.

The braking system features an air-applied, pneumatic brake system with composite shoes and a 24-volt hydraulic brake pump. The battery-powered trolleys capture their regenerative energy for recharging its own batteries. Electromagnetic rail brakes are an added safety feature to allow emergency stops. Emergency stop buttons are located at different points. Also, for added safety, there is full, dead-man integration at both operator locations, so if for any reason the operator becomes incapacitated, the car automatically stops.
Only the finest, premium lumber is used in a Gomaco trolley. These benches are made from alternating oak and cherry hardwoods, built and finished by Gomaco’s talented craftspeople.
350 Years of Trolley-Building Experience—

Woodworking is a craft taken very seriously at Gomaco Trolley Company. Woodworking techniques that have been used for hundreds of years are still used in the wood shop at Gomaco Trolley. They sit alongside modern woodworking equipment, creating a truly unique blend of old and new style. Gomaco Trolley’s craftspeople create the beautiful, hand-made woodwork. They are a group of highly skilled artisans with over 350 years of combined trolley-building experience.

Only the finest quality lumber and woods are used in a Gomaco trolley. The Birney trolley seats and benches built by Gomaco Trolley Company have featured alternating cherry and oak hardwoods. The Birneys have two style of benches, one style is rollover, bi-directional tranverse and the other is fixed position, longitudinal. The woods and style of the benches are completely customizable to your preference and trolley interior design.

Other hand-built, customized options can be built to create a unique hospitality area within your city’s trolley. Your trolley can be equipped with special catering and hospitality areas for serving food and beverages. It’s an ideal and creative solution for hosting grand openings, dignitary tours or other special events. These modular systems are removable, so the car can be returned to full capacity for everyday use.

Each of the wood elements is built by hand, sanded, stained, and then finished to a high, glossy shine showcasing the beauty and the grain of the premium lumber.
Custom-Built Parts from Gomaco Trolley’s In-House Foundry–

The clear, resounding “clang, clang” of the trolley’s solid brass conductor bell signals to passengers, motorists, and passers-by that a trolley is running the rails and making its stops. The string-pulled bell with clanger is one of the most unique aspects of a trolley and every one of Gomaco’s conductor bells is hand-cast to create its own unique sound. It’s just one of many hand-crafted brass pieces adding to the elegance and charm of a Gomaco trolley.

Gomaco Trolley has its own in-house brass foundry to create any variety of authentic brass parts using a sand casting process. The design of the part can be provided by an engineer or a designer, or our talented craftspeople can recreate the piece simply using old photographs.

The casting process combines old-world processes with modern day technology. It involves a certain amount of chemistry, careful mold construction, attention to detail, and care while creating each brass piece. Then, after casting, each piece goes through a series of tumbling machines. The hours spent inside the tumblers smooths, shines and polishes the brass to its beautiful final finish.

Custom-built brass pieces can include ornate hand grabs, seat rollover components, seat end fixtures, corner braces, conductor bells, vertical grab rails and the brass builder plaques proudly bearing the name and address of Gomaco Trolley Company, Ida Grove, Iowa.

Brass fittings across the top of these benches allow passengers to switch the bi-directional benches according to the direction of trolley travel.

Each trolley has its own, hand-cast brass bell creating the unique ring for the car that is recognized by so many riders.

Glossy brass fixtures created in the Gomaco Trolley foundry support the handrails and grab bars helping ensure rider safety.
Gomaco replica Birney trolleys #408 and #412 leave their trolley barn in Little Rock as they prepare for a day of transporting riders around the city.
Handicapped/Wheelchair Accessibility–

Accessibility is an incredibly important aspect for today’s transportation systems, with rules and regulations guarding the rights of handicapped citizens. Trolley cars are no different. All Gomaco Trolley cars are compliant with all Federal Transit Administration (FTA) and Americans with Disabilities Act (ADA) regulations.

Gomaco’s replica Birney trolleys can be equipped with one of several different style wheelchair lifts. The interior of the trolley can also be designed to accommodate wheelchairs with the proper safety requirements to ensure a safe and enjoyable ride.

A trolley enthusiast wheels aboard a Birney trolley during Tampa’s grand opening day.

A wheelchair lift on a replica Birney trolley in Little Rock hoists a passenger aboard for a ride.

The wheelchair access ramp folds down during testing to allow handicapped accessibility.

The wheelchair ramp forms into steps for the general public when retracted.

An interior view of the wheelchair ramp and control system is shown on the replica Birney trolley in Memphis.
A Gomaco trolley traveling on a custom-built trailer certainly captures the public’s attention as it makes its way from Ida Grove, Iowa, to its new home across the United States.

From Our Rails at Gomaco Trolley to the Rails in Your City—

Gomaco Trolley has built their own custom, “railed” trailer to transport the trolley cars from our facilities in Ida Grove, Iowa, to your city’s rail system. The specially-designed trailer allows the cars to be driven onto and off the trailer. No crane or lifting equipment is necessary or needed.

Delivery and set-up service, along with operator and safety training, is included with every Gomaco Trolley.

No special lifting equipment is necessary, we just drive your trolley right onto your tracks when our team delivers your very own Gomaco trolley.

Replica Birney trolleys leave their barn and start their day carrying passengers in Tampa.
Gomaco replica Birneys are running the rails in four cities across the United States. They were the first cars to have air conditioning systems, a nice amenity during the hot days of summer.
Little Rock, Arkansas – Five Cars Specifications for the Central Arkansas Transit (CAT) Authority Replica Birney Trolleys

Car Numbers: #408, #409, #410, #411, and #412.


Source of Running Equipment: Gomaco Trolley Company design, patterned after Peter Witt-style trucks from Milan, Italy.

Running Equipment: 30 HP General Electric traction motors. 650 volts, air/friction brakes. CP25 compressor.

Controls: Gomaco proprietary K35G IGBT (insulated gate bipolar transistor) solid state controllers. System diagnostics recording for troubleshooting analysis and documentation.

Length: 47.75 feet.

Width: 10 feet.

Height: 12.8 feet.

Weight (approximate): 47,000 pounds.

Balanced Speed: 30 mph.

Seating: 40 sitting, 50 standing (based on six people per square meter).

Total Crush Load: 90 people (does not include the operator).

Seats: Alternating oak and cherry. 16 Rollover, bi-directional transverse benches. Four fixed longitudinal benches.

Frame: New steel construction developed by Gomaco Trolley Company.

Windows: 11 per side.

Fittings: New brass castings by Gomaco Trolley Company.

Woods: Oak, cherry, birch, and plywood.

Whistles: Manufactured by Gomaco Trolley Company.

Air Conditioners: 11 tons of air conditioning capacity & 10 kilowatt heat.

Communication System: Conductor PA system.

E-Stops: Red emergency stop button located in each operator station.

Steps: Pneumatic sliding steps.

Chair Lift: ADA-compliant integrated wheelchair lift.

Signal Bell: Brass, made by Gomaco Trolley Company.


Floor: Transit flooring.

Ceiling: Birch. Custom pin stripe. Integrated duct work for air conditioning.

Roof: Plywood construction with fiberglass shell and canvas cover.

The January 2003 edition of “Light Rail Progress” stated that Little Rock’s historic streetcar project was offering nostalgic mobility with the reintroduction of double-truck Birney streetcars in Little Rock and North Little Rock. The cars originally ran the rails between the two cities from the 1920s to 1947.

The first Gomaco replica Birney to the Central Arkansas Transit Authority (CAT) was #408, starting again from the old numbering sequence of the former streetcars which ended at #407.

Today, the streetcars run their routes alongside the daily car and truck traffic. The overhead contact system uses simple trolley wire to help recreate the authentic look and feel of the original streetcar system.

The goal of the system was to facilitate people movement along the route and to boost tourism and economic development. If ridership numbers were any indication, CAT’s goal was reached. River Rail transported 200,000 passengers in the first year, alone.

Sun shines through the windows of Little Rock’s replica Birney trolley and highlights the beauty and luster of the hand-finished cherry and oak hardwood benches.
Charlotte's first streetcar system began in January 1887, with three cars drawn by two mules. One year later, the system had six cars, horses had replaced mules, and the fare to ride was five cents. The trolleys were credited with developing the city's earliest neighborhoods and economic growth.

Charlotte hoped to recreate that catalyst of growth with the reintroduction of trolleys to the city's rails. In 2001, three replica Birney trolleys were purchased from Gomaco Trolley Company, and new track was laid. A portion of new track would create a new corridor linking Uptown Charlotte and the historic South End.

It was hoped the investment would stimulate economic development along the route and property tax values would climb high enough to repay the investment in eight year's time. It took only four years to repay the investment, with property values in the corridor increasing by 89.6 percent along the route.

The wide-open floor plan for the Charlotte Area Transit System's replica Birney trolleys.

Oak and cherry woods are hand finished to high-gloss shine for both the rollover, bi-directional transverse benches and the fixed longitudinal benches in the Charlotte Birneys.
HART Line Edition
Tampa, Florida – Nine Cars
Specifications for the Hillsborough Area Regional Transit’s (HART) TECO Line Streetcar System Replica Birney Trolleys

Car Numbers: #428 - #436.
Source of Running Equipment: Peter Witt-style trucks from Milan, Italy.
Running Equipment: 30 HP General Electric traction motors.
                      650 volts, air/friction brakes. CP25 compressor.
Controls: K35 contact controller.
Length: 49.75 feet.
Width: 10 feet.
Height: 13.2 feet.
Weight (approximate): 46,400 pounds.
Balanced Speed: 30 mph.
Seating: 48 sitting, 53 standing (based on six people per square meter).
Total Crush Load: 101 people (does not include the operator).
Seats: Alternating oak and cherry. 16 rollover, bi-directional transverse benches.
                   Four fixed longitudinal benches.
Frame: New steel construction developed by Gomaco Trolley Company.
Windows: 13 per side.
Fittings: New brass castings by Gomaco Trolley Company.
Woods: Oak, cherry, birch, and plywood.
Whistles: Manufactured by Gomaco Trolley Company.
Air Conditioners: 11 tons of air conditioning capacity & 10 kilowatt heat.
Communication System: Conductor PA system.
E-Stop: Red emergency stop button located in each operator station.
Signal Bell: Brass, made by Gomaco Trolley Company.
Brakes: Pneumatic friction brakes with composite shoes and regenerative motor braking.
                   Manual friction parking brake.
Floor: Transit flooring.
Ceiling: Birch. Custom pin stripe. Integrated duct work for air conditioning.
Roof: Plywood construction with fiberglass shell and canvas cover.

Gomaco Trolley Company built Tampa’s Birneys based on a design created by the city of Tampa. The new cars resemble the double-truck Birney Safety trolleys that ran the city’s rail system between 1920 and 1946. The last original Birney to run was #427. According to the TECO Line’s web site... "In their heyday, Tampa’s streetcars whisked passengers to and from Ybor City, Ballast Point, Hyde Park, Sulphur Springs and points beyond. Operated by uniformed conductors, the Birney cars were a welcome sight, and the familiar clang of the streetcar bell was music to the ears. To ride the streetcar was to feel the pulse of the community..."

The trolley bell’s familiar clang was heard again in Tampa in 2000, ending an over 50 year silence in the city when the Gomaco replica Birney trolley #428 was put into service. There are currently nine of Gomaco’s Birney trolleys running along Tampa’s streetcar system.

Passengers of all ages board one of the nine new replica Birney trolleys in the city of Tampa during opening day festivities for the new streetcars.
The Memphis Area Transit Authority (MATA) has 35 trolley station/stops and 11 Gomaco trolleys, including nine reconditioned Melbourne trolleys and one single-truck semi-convertible enclosed trolley. MATA's 11th and newest Gomaco streetcar is replica Birney trolley #453.

According to MATA’s website, "the authentic vintage trolley cars invoke memories of the simple days of yesteryear - a much more innocent time in Memphis history. The trolleys combine Memphis' rich past with its optimistic future." Today, the trolleys, including the replica Birney, follow the same route as the mule-drawn trolleys operating over 50 years ago.

The Birney offers the same environmentally-friendly, and "green" benefits that the mules of the past did, but with the benefits of advanced technology. Plus, the ring of the hand-forged Gomaco Trolley brass bell has a decidedly nicer ring than the braying of an obstinate mule.

**Car Number:** #453.
**Car Builder:** Gomaco Trolley Company, Ida Grove, Iowa 51445.
**Source of Running Equipment:** Reconditioned W2 Type B Melbourne from Australia.
**Running Equipment:** 40 HP, MV101. 650 volts, air/friction brakes. CP27 compressor.
**Controls:** K35 contact controller.

Length: 46.1 feet.  
Width: 10 feet.  
Height: 13.25 feet.  
Weight (approximate): 47,000 pounds.  
Balanced Speed: 30 mph.  
Seating: 42 sitting, 45 standing (based on six people per square meter).  
Total Crush Load: 87 people (does not include the operator).  
Seats: Alternating oak and cherry. 10 Rollover, bi-directional transverse benches.  
Two fixed longitudinal benches.  
Frame: New steel construction developed by Gomaco Trolley Company.  
Windows: 13 per side.  
Fittings: New brass castings by Gomaco Trolley Company.  
Woods: Oak, cherry, birch, and plywood.  
Whistles: Manufactured by Gomaco Trolley Company.  
Communication System: Conductor PA system.  
E-Stops: Red emergency stop button located in each operator station.  
Steps: Pneumatic sliding steps.  
Signal Bell: Brass, made by Gomaco Trolley Company.  
Floor: Transit flooring.  
Ceiling: Birch. Custom pin stripe. Integrated duct work for air conditioning.  
Roof: Plywood construction with fiberglass shell and canvas cover.
Step Back in Time...
Step into a Gomaco Trolley—
Gomaco Trolley Company, located in Ida Grove, Iowa, USA, is a manufacturer of authentic vintage trolley cars which match the precision and quality craftsmanship of yesterday while incorporating the state-of-the-art technology of today. Gomaco can provide you with trolley manufacturing and engineering consultation on restoration or renovation of existing trolley cars or in the manufacturing of new trolley cars. All of the trolley construction is completed by certified craftspeople in Ida Grove, including welders, painters, carpenters, programmers, electricians and engineers.

Gomaco Trolleys can be battery powered or built to meet the requirements of existing lines with a standard 600 volt system, and they are compatible with light rail vehicle 750 volt systems. Now, the Double E hybrid propulsion system. The electric-over-electric dual powered Double E system can obtain power from both standard overhead power lines or from our own unique GTC Battery-Powered System. The GTC Battery-Powered System charges itself while running on the overhead lines. It allows the trolley to switch power systems on-the-go with the new “powered poles” for raising and lowering the overhead pole or pantograph.

Today at Gomaco Trolley—
Gomaco Trolley Company’s success can be seen riding the rails from coast to coast in the United States. Trolley car styles constructed to date include open-style; semi-convertible enclosed; reconditioned Melbourne; single-truck, semi-convertible enclosed; reconditioned Peter Witt; replica Birney; and battery-power, self-propelled seven-bench open-style.

Craftsmanship—
Gomaco Trolley Company takes pride in the craftsmanship that goes into every manufactured trolley. The goal is to keep the trolley cars as authentic as possible and to match the quality workmanship that went into the trolleys of the past. This has been accomplished along with using modern technology to improve the durability. Gomaco craftspeople have learned to blend the new technology with the authentic-looking, historically accurate car so you will always have an old-world feeling when you step aboard a Gomaco Trolley.

The framework is built with steel by certified welders. Gomaco also provides authentic brass parts from our foundry and wood beauty from our highly skilled craftspeople. Gomaco Trolley Company builds brass parts to meet all standard trolley requirements and to provide exact replicas cast from dies of authentic trolley parts. If you are in need of a special part, Gomaco will make a die and build exactly what you need.

Pride In Engineering—
Gomaco engineering has designed the trolleys for ease of operation and safety. The operator’s station is designed for excellent visibility and all controls are within easy reach of the operator.

The Perfect Parts—
Gomaco offers a large assortment of parts and accessories for trolley restoration, renovation and collectors of trolley memorabilia. Featured items are built from quality wood, iron, brass and steel.

Gomaco Trolley Company specializes in restoration or renovation of trolley truck assemblies. Gomaco also will build the seat assembly with the finest craftsmanship in the world, whether you choose cane or wooden seats. Precision craftsmanship combined with quality materials also provide a beautiful interior and exterior design for trolley doors and windows.

Green Power—
A totally green propulsion system is now possible with the Gomaco Trolley Double E hybrid system. The electric-over-electric dual powered Double E system can obtain power from both standard overhead power lines or from our own unique GTC Battery-Powered System. The GTC Battery-Powered System charges itself while running on the overhead lines. It allows the trolley to switch power systems on-the-go with the new “powered poles” for raising and lowering the overhead pole or pantograph.
Certified welders build the trolley’s frame.

The Birneys feature a ply-metal flooring, which is a layer of 0.75 inch plywood sandwiched between layers of stainless steel. The ply-metal is both water and fire resistant.

Trolley technicians put their expertise to work.

The Gomaco Trolley shop was filled to capacity as technicians worked to complete replica Birney trolleys for four different cities in the United States.

A trolley technician tests the various capabilities of the K35G IGBT controller.

Replica Birney trolley car #93 goes through final inspection before leaving for Charlotte.
Lowell, Massachusetts - Gomaco Trolley’s first two trolleys, 15-bench open style.

Lowell, Massachusetts - Semi-convertible enclosed trolley.

Memphis, Tennessee - Single-truck, semi-convertible enclosed trolley.

Portland, Oregon - Replica Council Crest trolleys.

Denver, Colorado - 15-bench open-style trolley.

Memphis, Tennessee - Reconditioned Melbourne trolley.
St. Louis, Missouri - Reconditioned Peter Witt trolley.

Los Angeles, California - Refurbishing project which included total repainting, refinishing the original woodwork, new flooring and steps, new brass handrails, rewiring the controls, and installing the Gomaco proprietary K35G controller.

Fresno, California - A static single-truck replica Birney trolley for the Fresno Metropolitan Flood Control District.

Philadelphia, Pennsylvania - Static replica Birney trolley for the University of Pennsylvania in Philadelphia.

Ida Grove, Iowa - "GG" static trolley for the Ida Grove Public Library children’s room.

Mount Pleasant, Iowa - Peter Witt trolley.

Tampa, Florida - 15-bench open-style trolley.

Glendale, California - Battery-powered, seven-bench, open-style trolley with five-bench, non-powered trailing car.

Ida Grove, IA 51445 USA          800-831-2320  www.gomacotrolley.com
From dream to reality, from yesterday to today...

Gomaco Trolley Company
Manufacturers of Authentic Trolley Cars

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