Dunedin Engineering | Robotics visits Polypack
Manufacturing Month and BAMA

- Polypack participates with BAMA offering a tour of their facility.
- Thank you to Nicolas Cerf | Sales Director Polypack for hosting and to Beth Galic | Bay Area Manufacturers Association and Michael McCullough | CTE Pinellas Schools for coordinating this amazing tour.
What is Polypack secondary packaging

Polypack specializes in designing and building shrink wrap and cardboard packaging equipment tailored to the needs of your application. Polypack offers a wide array of product collation modules designed to meet the packaging requirements of all industries. All Polypack end-of-line packaging machines are built with the best materials and components available, including stainless steel, to offer a long life span, superior performance, durability, and reliability.
Fabrication

- Stainless steel, aluminum and plastic parts
- Fusion 360/SolidWorks 3D model
- CNC and milling machines
"Engineering is the most transferable skill system, the universal knowledge of humanity and makes something useful"  
Arturo
Assembly

Building from the 3D model, similar to putting together a robotics kit

Andy
Mechanical Engineering

- Solid Works
- Professional problem solvers
- Polypack: Design and Manufacturing
“Each car has its own engineering story” Alan
Gasoline (Wood Gas Generation)

The gasoline system provides flammable gas, which is obtained by the distillation of a material containing carbon, for use in an automobile engine.

Origin

At the end of the 19th century, French engineer Philippe Lebon applied for a patent to produce gas by the distillation of small pieces of wood which were contained in a closed container exposed to the heat of a fire. The gas was then burned, emitting light. The name of the lighting apparatus was "thermolemp." Philippe Lebon demonstrated his system in Paris in his house as well as in his garden. The gas was hydrogen carbon mixed with many other products as tar.

The next development occurred in England, when William Murdoch decided to replace the wood with coal. With the help of James Watt, they made a system to light the Watt’s plant and later, in 1813, the Westminster bridge in London. At first all systems received the gas from an installation dedicated to each project, but soon, around the same epoch, distribution was done via conduits underneath the streets. The gas light was adopted in many countries, with gas plants located everywhere. In the mid-19th century the gas distilled from the coal was replaced by natural gas. As the hydrogen carbon mixed with pure hydrogen was very light, it was also used to inflate balloons.

Automobile Applications

At the end of the 19th century, there was some experimentation with modifications to the system. The heat necessary for the distillation of coal was provided by the partial combustion of the wood or of the charcoal. The system is simpler and uses less coal than the carbonization process. The gas is mainly composed of hydrogen and carbon monoxide, which are both highly flammable gases.

Another Frenchman, in the early 1920s, Georges Loum, patented a gasogene system for automobiles. The coke, coal, or charcoal, which is the chosen material, is placed in an enclosed container with only a tiny aperture to let in a small amount of oxygen for partial combustion. The gas is then cooled, and in the process, the water is eliminated. A filter, generally made of textiles, catches the solid particles which could hurt the engine. The gas is then directed to a second carburetor, in parallel with the original carburetor, for gasoline. A flap provides the means of switching between gasoline and hydrogen gas. Stays in the system normally last between 10 to 20 minutes; a small electrical fan creates an air draft in the furnace, which helps begin the partial combustion.

During the late 30s and into the 40s when gasoline was not available due to the war, hundreds of thousands of vehicles (automobiles, trucks, buses, etc.) were running all over Europe using the gasogene-system. In France, at least 10 suppliers of gasogenes were registered. Charcoal was the prime material. The hydrogen gas has less calories than the gasoline and to compensate for the chemical qualities of hydrogen, charcoal had to be added every 100 or 150 miles. One efficient but needed regular cleaning maintenance, such as removing the ashes. By the 1950s, all gasogenes were removed from Europe.

Our car, a Ford made in 1929, received a gasogene system manufactured in Spain in 1939. The Ford was running in the island of Palma de Mallorca prior to the Civil War in Spain. It is one of very few survivors, and it still runs great with the charcoal being delivered to the engine. The car was purchased from Hemi Depot, a classic car restoration shop in Barcelona.
JOIN OUR POLYPACK TEAM!

Polypack is an international packaging machinery OEM headquartered in Pinellas Park, Florida, USA. Polypack offers competitive pay and great benefits including:

- 100% Paid Health Insurance for Employees
- Vision, Dental & Short Term Disability and Life Insurance
- Competitive Vacation Package
- Traditional or Roth 401(K) plans with company matching

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Stainless steel coated in chromium nickel, less iron cleaner however loses magnetic ability
Milling machine, drill up and down – 3D model
Mcode, gcode
Tolerance, more time/more expensive work with customer  x+epsilon
Sheet metal – stainless
Assembly compare to robotics kit
Schneider programming
Secondary packaging
UHMC plastic – like cutting board
"universal knowledge of humanity and making something useful"
Final inspection, PLC – brain, servos, honing
Engineering – most transferable skill system
Each car has its own engineering story and there are 17 one of a kinds
Engineering: professional problem solvers, mechanical, electrical, physics, mathematics, communication, design
Design – quantify, substantiate
Analysis – simulation, verification
Manufacturing – prototype, production
Sales engineering: space, product, speed, sales drawing
Electrical engineering: power, pneumatics, sensors
Programming, mechanical, packaging
Manufacturing engineering: Router, cnc, mill
Industrial engineering
Sales – shipment
R and D Unpacker, pull plastic
Ladder logic, parallel, industrial machines
Micro controller, series
Qualit, speed, cost
Gcode cnc
Solid works
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