Modix

LARGE 3D PRINTING INNOVATORS MAGAZINE

Manufacturing Special Issue

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Establishing Engineering and printing services from home - by Engineering Garage

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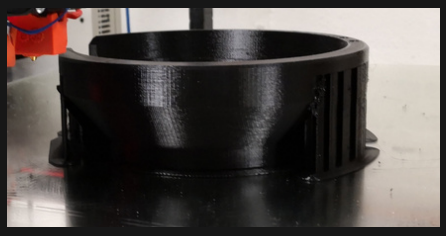

Designing Automated Factories with Modix Large 3D printing

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Modix
Large Scale 3D Printers

AMONG OUR VALUED CUSTOMERS

Aerospace

Automotive

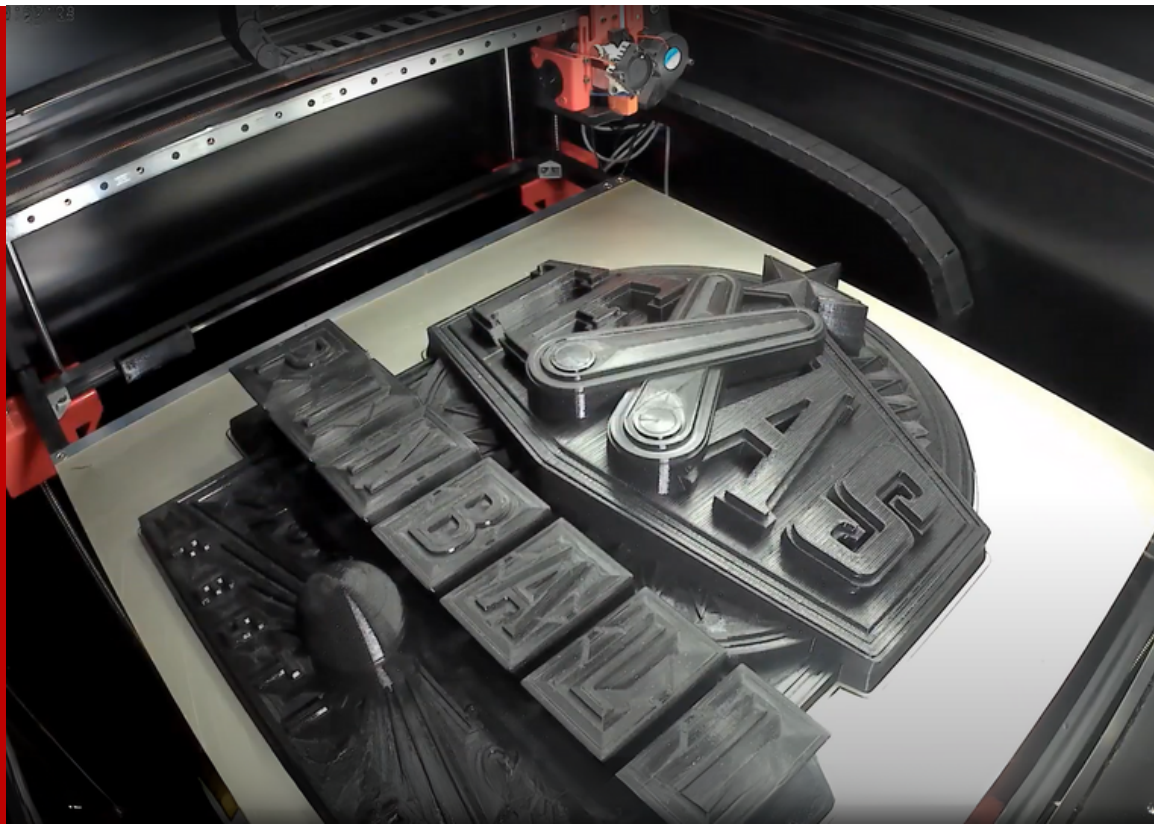
Defense

Educational

Consumer Electronics

A SHOWCASE O SUCCESS

ESTABLISHING ENGINEERING AND PRINTING SERVICES FROM HOME - BY ENGINEERING GARAGE



THE COMPANY

"Engineering Garage" is a small engineering and 3D printing service business from Indiana USA. With 15 years of design engineering experience, Brian Grimm, the owner, approaches each project on a job-by-job basis, giving each client the best service.

THE CHALLENGE

For most home-based business owners, it would be a dream to come across an economically priced large-format 3D printer. It substantially increases the capabilities of the home makerspace, enabling personal projects such as side tables, sculptures, or musical instruments. In the case of the Engineering Garage, a large-format 3D printer was necessary to 3D print automotive and industrial components, large domestic items, and large tools for the makerspace.

THE SOLUTION

The Engineering Garage's Modix BIG-60 is the optimal 3D printer for the Engineering Garage because its price point makes it affordable for hobbyists, who otherwise would have severely limited large-format 3D printer options. Additionally, the Modix Big 60 comes as a kit, and can be customized by at-home makers for its specific intended use. In the case of the Engineering Garage, they have been able to fit it with a timelapse camera.

THE SOCIAL IMPACT

The timelapses on the Engineering Garage's YouTube channel promote machine ownership and demonstrate to the wider community how 3D printing can be used to both prototype and manufacture large parts for machines and domestic use.

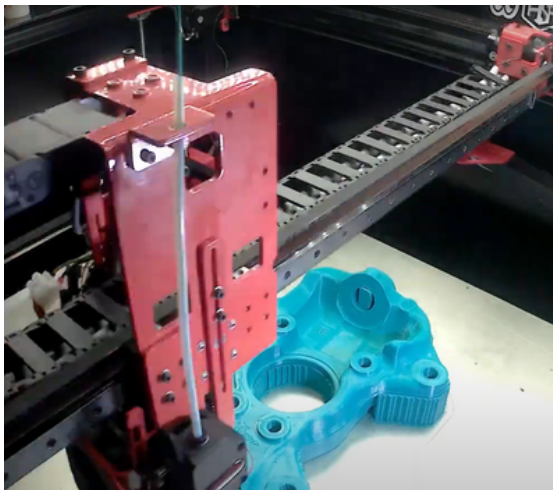
THE COMPANY
Engineering Garage

WEBSITE
https://engineeringgarage.company

VERTICAL
E3D printing services, Casting , Signs

APPLICATION
Prototyping, end-use tools, tools for casting

THE PRINTER
Modix BIG-60 version 3



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Large Scale 3D Printers

THE MODIX BIG-60: A GAME-CHANGER FOR THE COMPOSITE MANUFACTURING INDUSTRY

THE COMPANY
TCB Composite

WEBSITE
tcbcomposite.com

VERTICALS
Aerospace, Manufacturing, Automotive, Industrial

APPLICATION
Mold making, Prototype creation, Rapid tooling
Fixtures, End-use parts

THE PRINTER
Modix BIG-60

THE COMPANY

TCB Composite is a manufacturer and seller of commercial composite aircraft spinners and bulkheads for military and commercial aerospace applications such as Piper, Cessna & American Grumman. The company provides tailor made parts and needs to create large and robust molds for composite materials for aviation and aerospace industries.

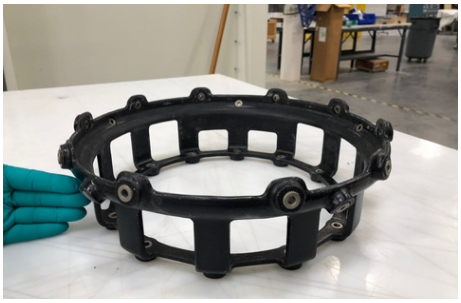
THE CHALLENGE

Traditionally, TCB Composite would use CNC machining to create molds for composite materials. However, this process was time-consuming and expensive, and it often resulted in parts that were not as accurate as desired. The company also needed to find a way to create larger molds, as the demand for larger aircraft parts was growing

THE SOLUTION

TCB Composite turned to Modix BIG-60 printing as a solution to their challenges. The company purchased a Modix 3D BIG-60 printer, which has a large build volume of 600 X 600 X 660 mm. This allowed TCB Composite to print larger molds more quickly and accurately than ever before.

In conclusion, The Modix BIG-60 has been a valuable asset to TCB Composite. The printer has allowed the company to create large and accurate molds for composite materials more quickly and easily than ever before. This has helped TCB Composite to improve its production process and meet the growing demand for larger aircraft parts.



"“The fixtures in the carbon fiber part allow us to fixate it so that we can always accurately drill holes. It took about 60 hours each at 80 mm/s, PLA. The solid one is about 2.5 lbs. of plastic, the one with holes about a pound less.” said Neal Crookston, Production Supervisor at TCB Composite.

INNOVATIVE INTEGRATION: 3D-PRINTED JIGS IN PCB MANUFACTURING

Modix
Large Scale 3D Printers

COMPANY
Francis Lorival , Engineer at
CBS Industries, France

VERTICAL
PCB Manufacturing

APPLICATION
Industrial Fixtures

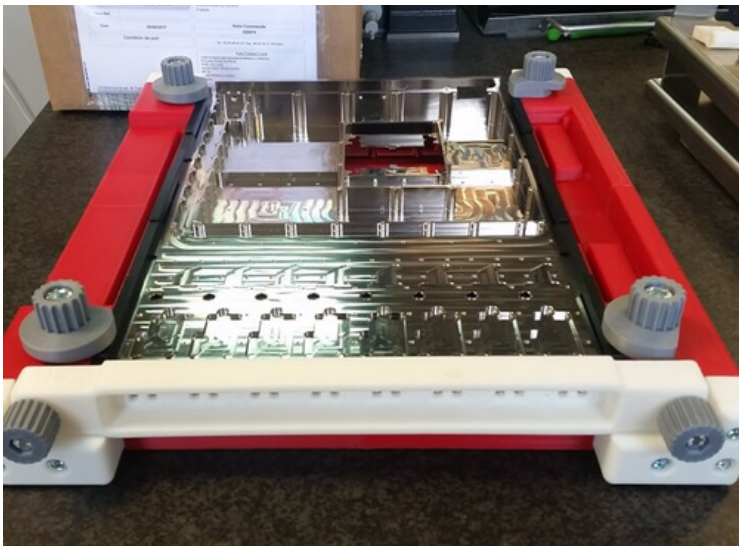
THE PRINTER
Modix BIG-60 V1 and V3

THE COMPANY

CBS Industries, a France-based engineering company, has been using Modix BIG 60 machines as the pinnacle of their large-format 3D printer fleet.

THE CHALLENGE

Francois Lorival of CBS Industries has been steadily increasing his company's 3D printing volume capabilities for the past few years. His goal was to find the largest 3D printer for the best price available, so that his company could 3D print industrial parts and fixtures, as well as demonstrations and cool side projects.



THE SOLUTION AND OUTCOME

Modix is an obvious choice for such a challenge; by price-per-cubic meter metrics, it cannot be beaten elsewhere in the consumer 3D printing market. It has enabled Lorival, with CBS industries, to create parts and demonstration projects. For example Francois was able to aid his company with several large PCB manufacturing fixtures as well other manufacturing tooling.

As a hobby project, Francois has used Modix to print an electric guitar body. When it comes to guitar body manufacturing, 3D printing is an ideal solution. Internal channels can be printed directly into the guitar body instead of being routed after the body's construction. In this way, the guitar is ready for electronics and neck installation immediately after being manufactured.

CUSTOMIZED ENCLOSURES FOR MOBILE ROBOTS TAILORED PERSONALITY, THE MASS CUSTOMIZATION STORY OF METRALABS.

THE COMPANY
Metralabs

VERTICAL
Industrial robots
Retail robots

APPLICATION
Prototyping
Manufacturing

THE PRINTER
Modix BIG-60

THE COMPANY

Metralabs is a developer of autonomous navigating service robots for different applications worldwide. Applications include industrial robots, robots for retail uses, research, etc.

THE CHALLENGES

Metralabs faces the challenge of designing and creating robots in different sizes, for clients with different needs. Each of these designs differs in both technical details and overall look of the robot in order to meet the customers functional needs and use profile. Therefore, the company needs to utilize strong yet versatile working tools.

THE SOLUTION AND OUTCOME

Modix's BIG-60 3D printer provides an in-house solution for manufacturing parts, prototyping models and testing versatile robots and the products' functionality.
With Modix BIG-60 Metralab can manufacture small batches of tailored enclosures without the heavy investment needed for molds. It also helps to close more deals as clients can see a unique design that matches their needs better than a standard robot design; i.e. a robot design for a retail shop might want to look different than a robot for industrial warehouse deliveries.

The BIG-60 printer is a large-format 3D printer that can print parts up to a print volume of 600 X 600 X 660 mm. This makes it ideal for Metralabs, which needs to be able to print large parts for its robots. The BIG-60 is also very versatile, and can print with a variety of materials, including PLA, ABS, and nylon. This gives Metralabs the flexibility to choose the right material for each application.

"The print quality is improving with every print. We finished a robot for a new project recently. All the housing parts were printed with a Modix BIG-60 printer. The parts were grinded, filled and painted afterwards. Also, our boss is thinking about buying a second printer, which is good.", says Alexander Kloska, Mechanical Engineer at Metralabs. "For our prototypes and small productions we normally use the 1mm nozzle and the 0.6 layer size. We usually use white PLA filament and each enclosure part takes approximately 20 hours to print."

Modix
Large Scale 3D Printers

SPEED, VERSATILITY, AND BUDGET: TTICI'S TRIPLE CONSULTANCY WIN WITH MODIX BIG-60

TTICI, a technology consulting specialist, achieved triple success with the Modix BIG-60 3D printer thanks to its modular design, versatility in materials, rapid prototyping, and cost-effectiveness

THE COMPANY

TTICI is a technological automaton consulting specialist based min Germany. Operating in the fields of robotics and machinery, engineering, and electronic engineering, TTICI focuses on developing new products and concepts, including Industrial applications, prototyping, rapid prototyping, and product development.

THE CHALLENGE

In the fast-paced world of industrial manufacturing, TTICI faced the challenge of providing customized, rapid, and cost-effective solutions to its clients. The need for a versatile and efficient 3D printer that could handle various materials and adapt to specific customer needs was paramount.

COMPANY
TTICI

WEBSITE
https://ttici.de

VERTICAL
Robotics & Machinery, Engineering
Electronic Engineering

APPLICATION
Industrial Applications
Prototyping , Rapid Prototyping
Product Development

PRINTER
Modix BIG-60

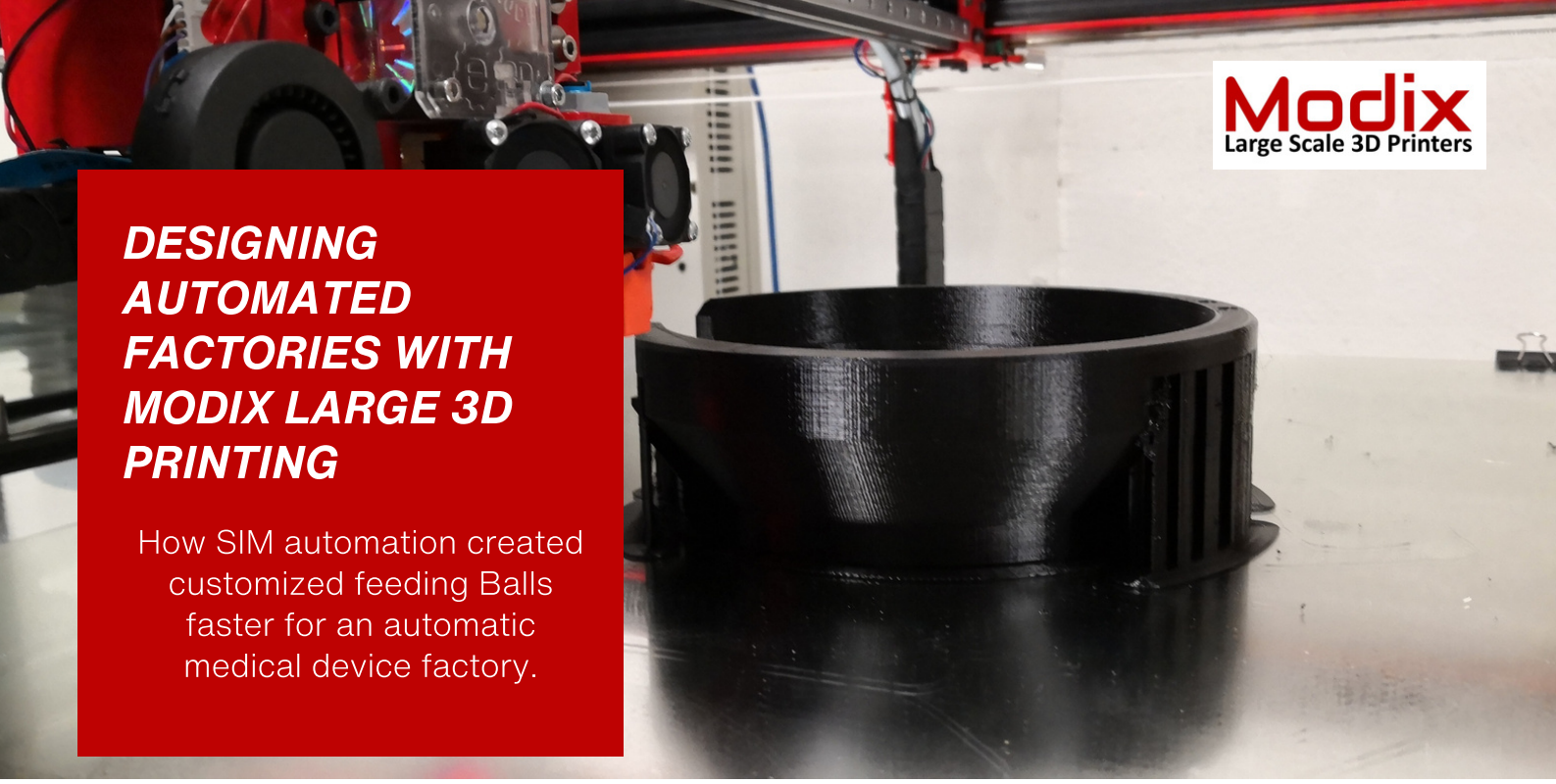
THE SOLUTION & OUTCOME

To address the unique challenges faced by TTICI, the Modix BIG-60 3D printer was identified as a solution that could provide the necessary customization, efficiency, and cost-effectiveness. The key features of the printer that contributed to its success with TTICI include:
Modular Design: The Modix BIG-60's modular design allowed TTICI to tailor specific solutions to their customers, as stated by CEO Bjorn Magnussen.
Versatility in Materials: Capable of producing items in both metal and plastic, the printer offered the flexibility needed for various projects.
Rapid Prototyping: The printer's speed and efficiency facilitated rapid prototyping, essential for product development and innovation.
Cost-Effective: Quality printing within a limited budget made the Modix BIG-60 an attractive option for TTICI.

CONCLUSION

In the fast-paced world of industrial manufacturing, TTICI faced the challenge of providing customized, rapid, and cost-effective solutions to its clients. The need for a versatile and efficient 3D printer that could handle various materials and adapt to specific customer needs was paramount.

Bjorn Magnussen, CEO, TTICI:
"One of the major benefits for us is the modular design of Modix BIG-60 3D printer. This allows us to tailor specific solutions to our customers"



DESIGNING AUTOMATED FACTORIES WITH MODIX LARGE 3D PRINTING

How SIM automation created customized feeding Balls faster for an automatic medical device factory.

THE COMPANY

SIM Automation is a German company specializing in manufacturing automated manufacturing lines for the medical, pharmaceutical, food, automotive and other industries. SIM Automation's services are tailored to the specific needs of each customer, ensuring that they receive the highest quality automation technology available.

COMPANY
SIM Automation

WEBSITE
sim-automation.com

VERTICAL
Industrial automation
Manufacturing
Robotics
Medical
Pharmaceutical

APPLICATION
Prototyping
Customized Production

THE PRINTER
BIG-60 3D

THE CHALLENGES

SIM Automation wanted to create a large feeding ball that would be used for components that need to be installed in a medical device during the automated manufacturing process. These bowls oscillate in a special way that helps the components to climb along their grooves and feed the assembly robots in a very specific order, angle and speed.

Feeding balls known also as “Vibratory bowl feeders” are crucial for orienting and feeding parts in automation, present challenges due to the need for precise part orientation, effective vibration control, noise reduction, and integration with downstream equipment (i.e. a robotic arm that will pick the parts). SIM Automation was looking for an efficient, time-saving, accurate, and non-expansive solution for this matter.

THE SOLUTION AND OUTCOME

Sim Automation has purchased a Modix BIG-60 3D printer in order to expedite the development of their specially designed large feeding bowls.

Utilizing Modix expedited the production of these components by allowing rapid prototyping and testing of custom designs tailored for specific parts. This not only speeds up the design and refinement process but also reduces the lead time in manufacturing the tailored internal tooling, thereby providing a quicker and more adaptable solution to meet specific feeding needs.

These feeding bowls prototypes are printed and then tested in a development system. Final production parts are sometimes printed with medical certified ABS filament.

> ***“The Modix BIG-60 has been a game-changer for our company. It has allowed us to create custom feeding balls quickly and accurately, which has saved us a significant amount of time and money. We are now able to meet the specific needs of our customers, and we are confident that our products are of the highest quality.”***

Mr. Michael Wagner, SIM Automation

THE FUTURE OF SPARE PARTS WAREHOUSING WITH EV PARTS UK

THE COMPANY

EV Parts UK is an Engineering Technology company with experience in the rechargeable energy storage sector since 2004. The company offers a full range of solutions and has a proven track record in a variety of applications including electric motorsports, electric vehicles, grid energy storage systems, leisure vehicles, and marine propulsion.

THE CHALLENGES

Along with many electrochemical systems, such as batteries, come hundreds of mechanical connectors, spacers, fan blades, and other niche parts. To maintain an inventory of so many easily-printable mechanical parts in the age of 3D printing would be nothing short of a waste of money. EV Parts, though, due to the size of some of their batteries, also needed to be able to 3D print relatively large components for their electrical systems, so they needed a 3D printer that was larger than a desktop 3D printer but still for a reasonable price.

COMPANY
EV Parts UK

WEBSITE
https://www.evparts.co.uk/

VERTICAL
Automotive Industry
Renewable Energy

APPLICATION
Prototyping
Customized Production
In-House Production Optimization

THE PRINTER
BIG-60

THE SOLUTION AND OUTCOME

Modix's high performance, large print volume printer provides the company with an overall 3D printing solution and supports the company's in-house production of electromechanical components. Now, instead of searching through vast catalogues of OEM parts, they can make custom components in-house for each of their custom energy storage solutions.

MORE BENEFITS OF USING MODIX

Aside from saying goodbye to OEM (at least for highly-diversified inventories), EV Parts can largely say goodbye to custom 3D part manufacturers, too. Having a Modix 3D printer means that EVParts can create large housings and bespoke parts from CAD-to-table, without having to use a 3D printing or manufacturing service at all. The size advantage of Modix alone is highly valuable for a company offering bespoke solutions; EV Parts was able to use the BIG-60 to 3D print a Go-Kart battery enclosure for 18650 battery cells!

THE SOCIAL IMPACT

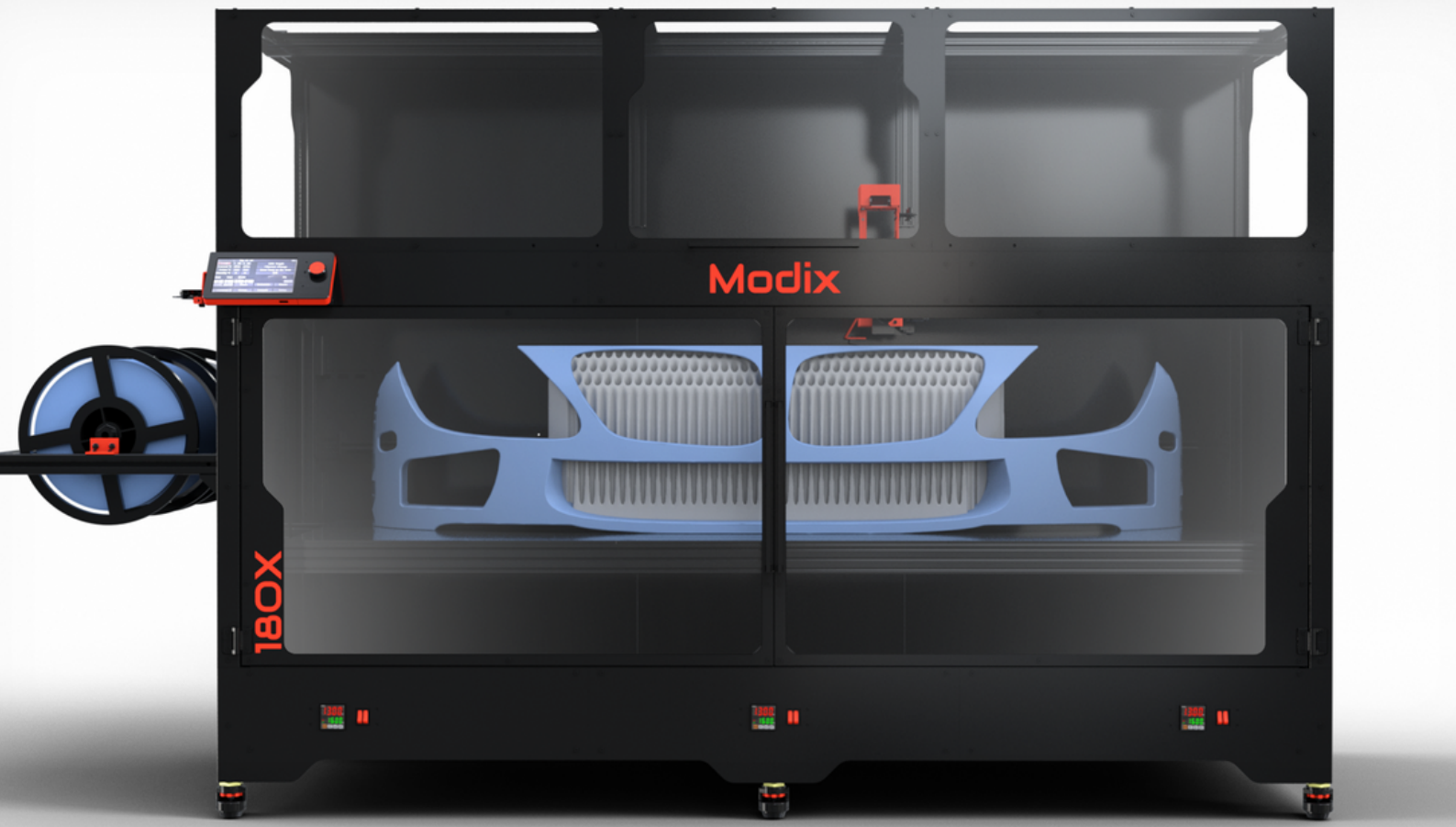
Electricity storage is an incredibly valuable technology that has burgeoned in recent years with the advent of mass-produced electric automobiles and a desire to wean off of fossil fuels. Modix is happy to be able to provide the tools for the development of new electricity storage technologies, in an ultimate effort to make the world a more energy-efficient and capable place.

"We've now gotten to grips with the new Modix BIG-60 printer and are using it almost every day.
Prints we've done so far: A cell enclosure for 18650 cells, which will form part of a go-kart battery module and circulation fan for our environmental chamber...and more to come!"

BRAD BUNYARD
EV PARTS, UK

Modix

Large Scale 3D Printers



www.Modix3D.com Info@modix3d.com