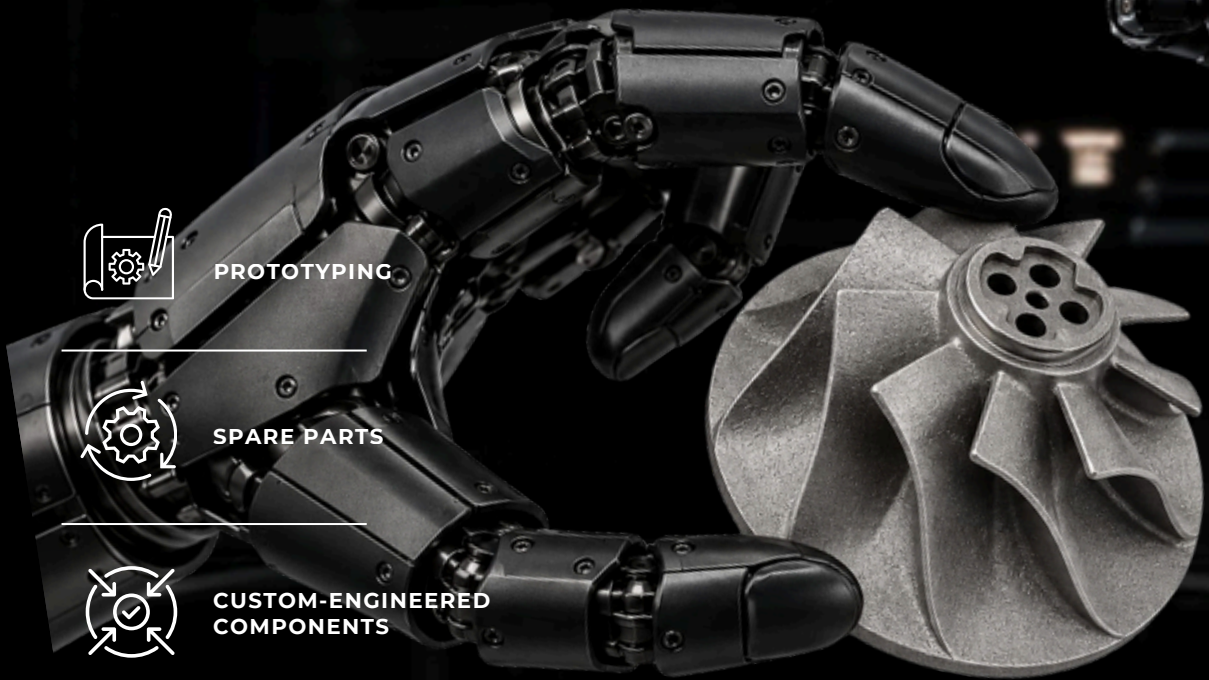
AMTH
Additive Manufacturing Technology by Hydropress

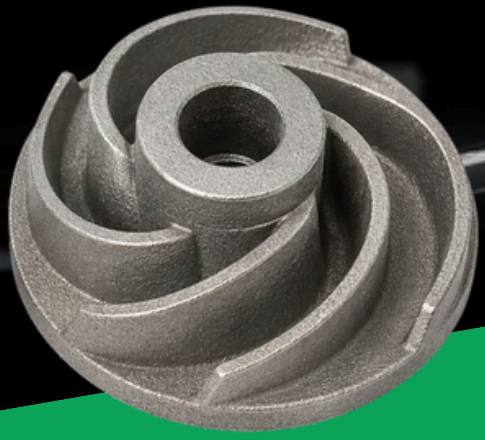
FROM CONCEPT TO FINAL PRODUCT

METAL AND POLYMER 3D PRINTING

FOR INDUSTRIAL AND RESEARCH APPLICATIONS



- PROTOTYPING
- SPARE PARTS
- CUSTOM-ENGINEERED COMPONENTS



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TECHNOLOGY. PRECISION. PASSION.

Which **3D PRINTING** technologies do we use?

DMLS /SLM

**3D printing in DMLS technology allows for the production of metal components with high precision and strength.
As a result, it makes it possible to manufacture parts with optimal geometries that would be difficult or even impossible to achieve using conventional machining processes.**

**This technology is already used in the aerospace, automotive, medical, and energy industries, where precision, reliability, and quality are essential.
DMLS is also an ideal solution for single-unit and small-series production, as well as for prototyping functional metal components.**

materials:

Aluminium alloys, tool steels, stainless steels, nickel alloys, titanium alloys.

SLS

3D printing using the SLS method makes it possible to create durable and precise components without the need for supports.
It works perfectly for single-unit and small-series production, as well as for manufacturing complex shapes that are difficult to obtain with other methods.

This technology is used in the automotive, aerospace and medical industries, as well as in the design of consumer products and functional prototypes.
Thanks to SLS, even the most demanding projects can be carried out quickly and cost-effectively.

materials:

PA12 and PA11 (optional glass or carbon fiber reinforcement for increase stiffness).TPU for flexible components.

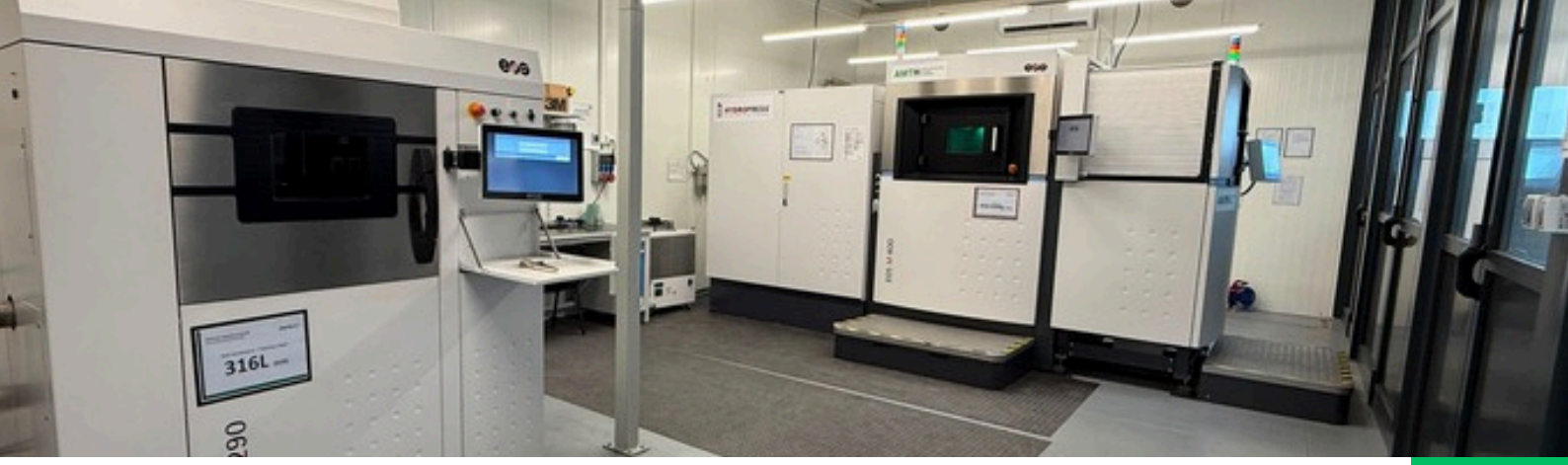
FDM

3D printing in FDM technology is another manufacturing method that makes it possible to quickly produce both single items and small series of components.
It allows for the preparation of test models, utility parts, or promotional products (marketing applications).

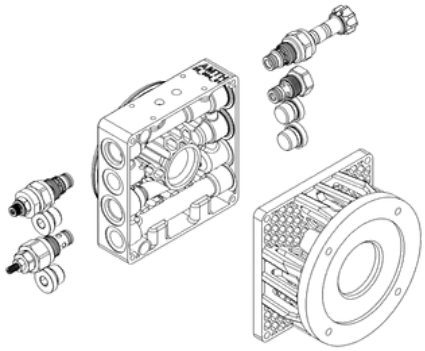
This solution works well in many fields - from industry and science to architecture and home applications.

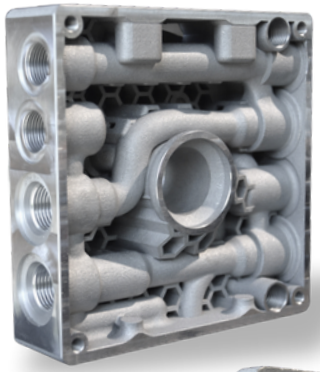
materials:

PLA, ABS, PETG, TPU, ASA, nylon (and others per request).



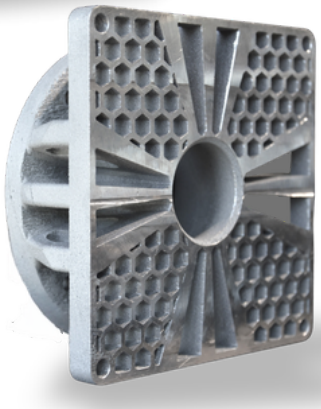
CASE STUDY





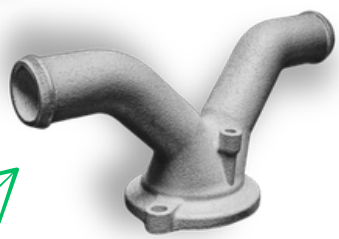
hydraulic manifold

- design of the manifold and mounting;
- printed in aluminum (AlSi10Mg);
- taking into account additional functionalities, geometry optimization, and weight reduction



rocket engine combustion chamber

- the use of DMLS/SLM technology enabled the manufacturing of integrated cooling channels within the chamber wall;
- the component was manufactured for SimLE (Gdańsk University of Technology) as part of the SimBa rocket program



gear shift mechanism and race car cooling system components

- complex structures and geometries that are time-consuming or challenging to manufacture using conventional methods;
- printed in aluminum (AlSi10Mg) for PGRacing Team (Gdańsk University of Technology)

Rapid **PROTOTYPING**

Frequent design changes? Long lead times for prototypes? No technical documentation? Tight deadlines?

Sounds familiar? Call or e-mail us!
We will find a solution to fulfill your requirements.

YOUR BENEFITS from 3D printing

- **Reduce the cost of small-batch production compared to standard manufacturing methods such as machining (shape optimization) or casting (high mold costs).**
- **Shorten the lead time for prototypes, even with numerous design changes, and quickly obtain spare parts and single-unit products.**
- **Shorten supply chains, optimize inventory management according to the “Just in Time” principle. All this while maintaining full confidentiality of your order data.**
- **With our expert design and production support, you will bring new products to market faster.**

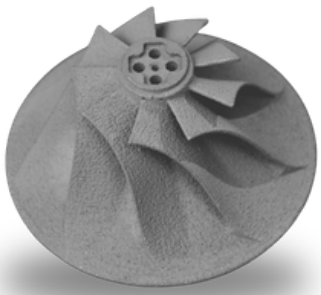
Complex geometries

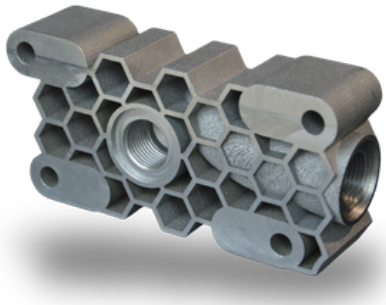
Weight reduction

Design optimization

Ecology

Individual approach



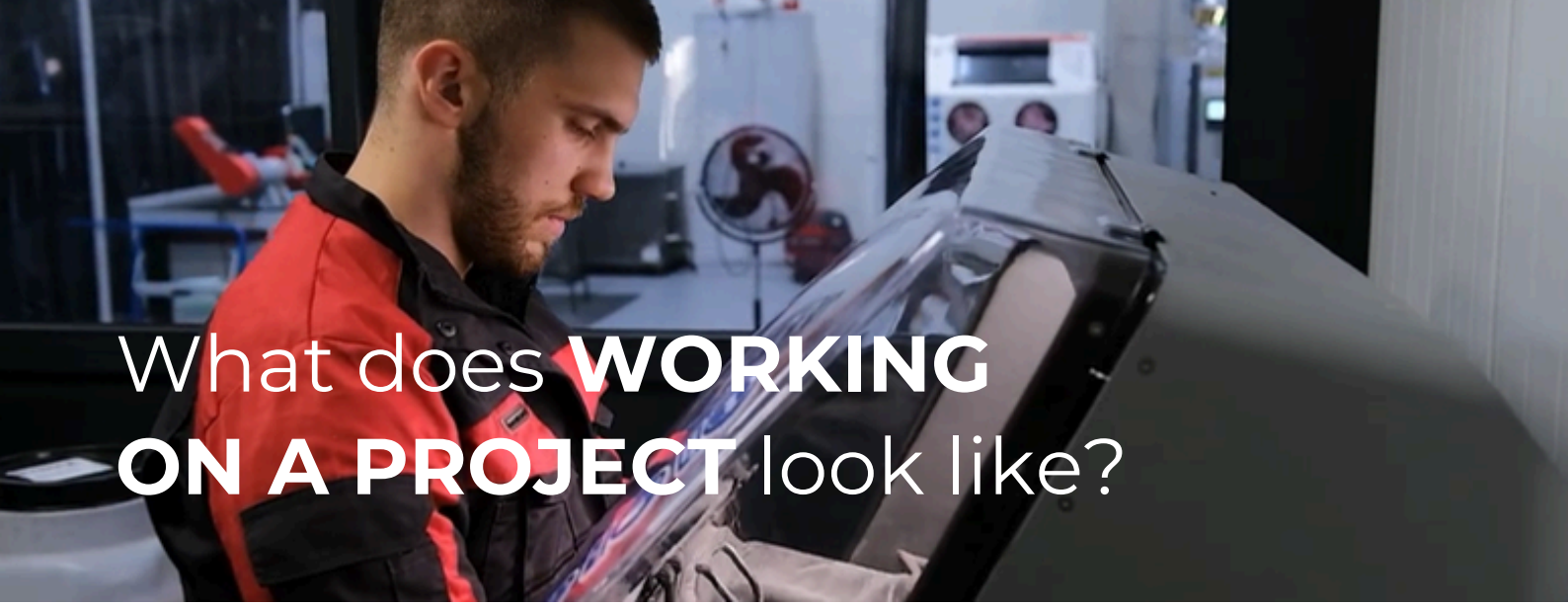


	STRUCTURAL COMPONENTS	AUTOMOTIVE AND INDUSTRY	HYDRAULIC SYSTEMS
CONVENTIONAL MANUFACTURING METHODS	casting, subtractive machining	casting, subtractive machining	casting, subtractive machining
TIME REQUIRED FOR CONVENTIONAL MANUFACTURING	8 weeks (including design)	8 - 10 weeks	12 weeks
TIME REQUIRED FOR 3D PRINTING	2 weeks (includet design)	3 weeks	3 weeks
MATERIAL EXAMPLES FOR 3D PRINTING	aluminum alloys, tool steels, stainless steels	aluminum alloys, tool steels, stainless steels, nickel alloys	aluminum alloys, tool steels, stainless steels
	organic shape, generative design	**complex geometry, time-consuming and difficult to achieve using conventional methods**	**flow optimization, weight reduction**

EXAMPLES
of 3D printing applications

At AMTH, we support our clients in achieving their business goals by optimizing costs and lead times of projects and produced prototypes.

We use our experience in the field of hydraulic systems and technological know-how to provide full support from AMTH engineers: from consultation, through design, to manufacturing and post-processing.



What does **WORKING ON A PROJECT** look like?

The AMTH engineering team offers comprehensive support at every stage of project implementation: from concept, through design modifications, to quality control of the manufactured components.

Depending on the client's individual needs, we present an appropriate plan of action.

product

project verification

optimization

plastic prototype (optional)

metal or polymer printing

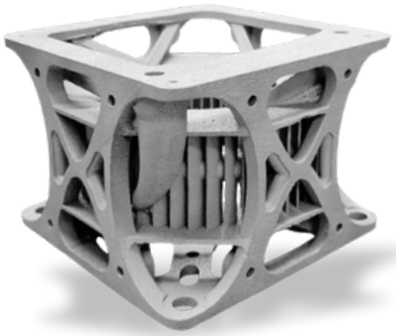
postprocessing (optional)

We place the highest priority on protecting our customers' data, safeguarding technical documentation, 3D models, engineering drawings, and order-related information for projects of strategic importance.

We ensure full control over the process and the security of sensitive information at every stage of our cooperation and after.

Why should **you choose us**? We think and act comprehensively!

The Hydropress Research and Development Center has the largest metal 3D printing system in Poland, as well as equipment for comprehensive support in testing and post-processing of manufactured products.



METAL 3D PRINTING SERVICES

- DMLS / SLM

POLYMER 3D PRINTING

- SLS
- FDM

3D SCANNING

SURFACE FINISHING

- sandblasting
- shot blasting
- grinding
- electroless nickel-phosphorus plating
- electroplating
- coloring and dyeing

RESEARCH AND TESTING

- material and coating composition analysis
  - → spark spectrometry
  - → X-ray spectrometry
- metallographic microscopy
- endoscopy
- hardness testing
- roughness testing
- corrosion testig

CNC MACHINING

- milling
- turning
- electroerosion

HEAT TREATMENT

- chamber furnace temperature up to 1300^{0}C

PROCESS CONTROL

SHORT LEAD TIME

LARGE 3D PRINTING WORKSPACE

WIDE RANGE OF MATERIALS

AMTH OPERATES ONE OF THE LARGEST METAL 3D PRINTING SYSTEMS IN POLAND:

EOS M 400

metal 3D printing
build volume:
400 x 400 x 400 mm

EOS P 396

polymer 3D printing
for industrial applications
build volume:
340 x 340 x 600 mm

EOS M 290

metal 3D printing
build volume:
250 x 250 x 325 mm

SYSTEM FUSE 1+ 30W

industrial polymer 3D printing system
build volume:
165 x 165 x 300 mm

3D PRINTING supports all industries

AUTOMOTIVE
SPACE
PRODUCTION AND MAINTENANCE OF OPERATIONS
DEFENCE
MEDICINE
DESIGN
TRANSPORT BY RAIL
ENERGY SECTOR
MARINE INDUSTRY
AVIATION
TRANSPORT BY ROAD
CONSUMER PRODUCTS

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HYDROPRESS® power hydraulics

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