
AMD
ENGINEERING
Additive Mechatronic Design

About Us

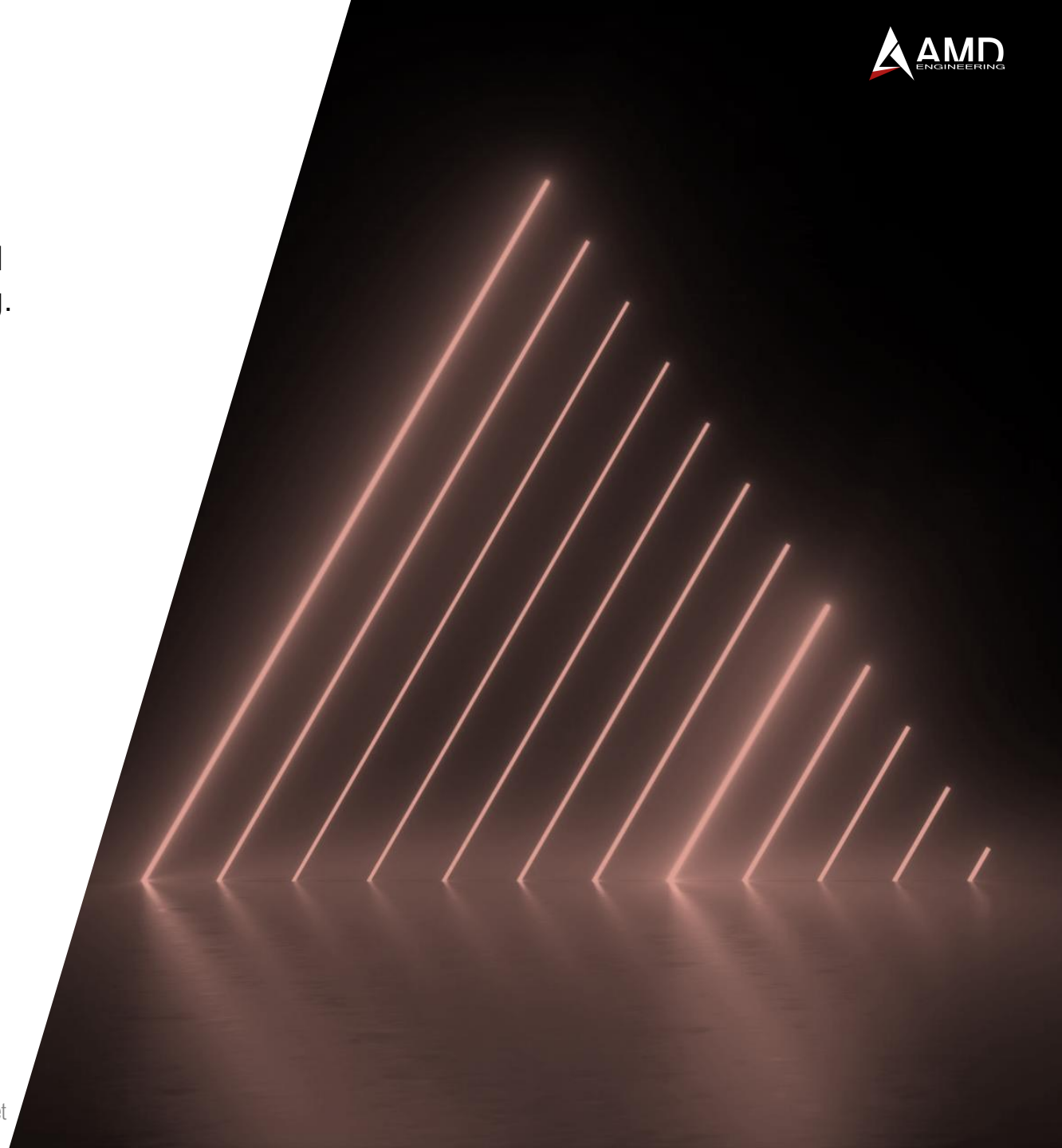
AMDengineering is a young and dynamic company specializing in the design of mechatronic components and systems, with a particular focus on additive manufacturing.

Born from the twenty-year experience in custom machine engineering of its founders, every project naturally combines technological innovation, environmental sustainability, and robotics to create a high-tech product.

A diverse team, with specific and cross-functional skills, turns ideas into reality: from design to turnkey prototype.

In brief

- HQ: via Cipro 1, Brescia (IT)
- Sectors: Oil & Gas, Aerospace, Motorsport, Industry
- Supply chain: single prototype or small series



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Our Sectors

Multi-sector expertise

Oil & Gas

Priority Sector

- **Parts:** valves, manifolds, compressor components, sealing systems, spare parts, retrofit
- **Assemblies**
- **Reverse Engineering** of obsolete OEM parts
- FEA/CFD analysis for critical environments

35%

Industry

Obsolete spare parts, reverse engineering, on-demand metal/polymer printing, steel plants, automation

25%

Motorsport

Rapid prototyping, tooling, lightweight high-performance components, design, racing parts

25%

Aerospace

Certified structural and functional components, metal printing for critical parts, mechatronic engineering

15%

AMDengineering operates to ensure high quality standards across all services offered.

Our team approaches every idea with seriousness and professionalism, studying the best solution in terms of productivity, cost savings, quality and environmental impact.

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Our Technical Capabilities

From design to prototype: integrated simulation, optimization and quality control.

Blank-sheet Design

3D model, drawings, BOM.
Concept-to-deliverable support with focus on additive manufacturing.
Reverse Engineering.

CAD / AM

FEA & CFD Analysis

FEM structural simulation, computational fluid dynamics (CFD) and thermal analysis for virtual validation.

SIMULATION

DFAM & Topology Optimization

Lattice structures (nTop), TPMS and Topology Optimization: lightweighted geometries without compromising mechanical properties.

DFAM

Deviation Analysis

Quality control: deviation analysis between the scan and the CAD model of the component.
Analysis report provided.

QUALITY

Turnkey Prototype

Complete supply-chain from our supplier network: design, 3D printing and CNC post-machining. Surface finishes, heat treatments and quality testing.

PROTOTYPE

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Our Process

From brief to delivery: transparent, traceable, on-time

DEVELOPMENT PROCESS
Case Studies

From-scratch design
(component or assembly)

1. Meeting with client and analysis of client's idea
2. Layout
3. 3D assembly modeling + construction details per standards (if required)
4. Commercial & standard parts sourcing
5. Manufacturing process analysis and 3D model adaptation (if required)
6. FEA/CFD Analysis, Topology Optimization
7. Technical drawing + construction notes for supplier
8. Consultation with supplier and client for first prototype realization
9. Turnkey delivery with qualification

From existing client files and documentation

1. Meeting with client and document analysis
2. Layout (in case of assembly)
3. 3D assembly modeling + construction details (if not already existing) per standards (if required)
4. Commercial & standard parts sourcing
5. Manufacturing process analysis and 3D model adaptation (if required)
6. FEA/CFD Analysis, Topology Optimization
7. Drawing or update + construction notes for supplier
8. Consultation with supplier and client for first prototype realization
9. Turnkey delivery with qualification

Revamping & Reverse Engineering

1. Context analysis with client (study of the component alone or all dependent parts)
2. Scanning or receipt of .stl file
3. Manufacturing process analysis (check if part needs repair or rebuild)
4. Optional Reverse Engineering, 3D modeling or technical drawing
5. Component deviation analysis
6. Assembly restoration + commercial & standard parts sourcing (if required)
7. Consultation with supplier and client for component/prototype or assembly realization
8. Turnkey delivery with qualification

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Equipment



Technical Specifications	HandSCAN Black Elite
Light Source	30 laser blu
Volumetric Accuracy (mm/m)	0,020 + 0,040
Scan Area (mm)	310 x 550
Working Distance (mm)	300
Scanner Type	Portable, handheld
Depth of Field	550 mm
Color Scanning	No
Marker-based Scanning	Yes
Part Size (m)	0,05 - 4,0
Scanning Speed (pts/s)	1.800.000
Scanning Accuracy (mm)	Up to 0.025
Sphere/Plane Form Error (mm)	0,030 / 0,050
Scanning Depth (mm)	250
Point Spacing (mm)	0,2
Laser Class	2M (eye-safe)
Software	VXelements
Output Format	.dae .fbx .ma .obj .ply .stl .txt .wrl .x3dz .zpr .3mf



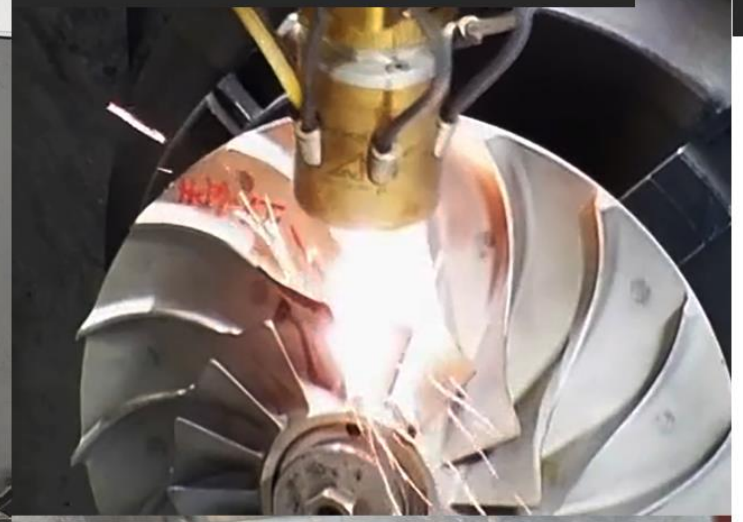
Technical Specifications	MetraSCAN BLACK+™ Elite
Accuracy	0,025 mm
Volumetric Accuracy 9.1 m³	0,064 mm
Volumetric Accuracy 16.6 m³	0,078 mm
Auto-Extend Acc. (1)	0,025 + 0,015 mm/m
Form Error (sphere)	0,025 mm
Form Error (plane)	0,045 mm
Acc. with HandyPROBE Next+	0,025 mm
Acceptance Test (2)	VDI/VDE 2634 pt3 e ISO 10360
Pin (3)	0,750 mm
Hole (3)	1,250 mm
Step (3)	0,025 mm
Wall (3)	0,500 mm
Measurement Resolution	0,025 mm
Mesh Resolution	0,100 mm
Measurement Frequency	1.800.000 mis/s
Light Source	30 lame laser blu (+1 extra)
Scan Area	310 x 350 mm
Working Distance	300 mm
Depth of Field	250 mm
Part Size (recommended)	0,2-6 m
Setup Assistance tools (4)	Included
Output Format	.dae .fbx .ma .obj .ply .stl .txt .wrl .x3d .x3dz .zpr .3mf

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Reverse Engineering and replacement with traditional turning and milling machines

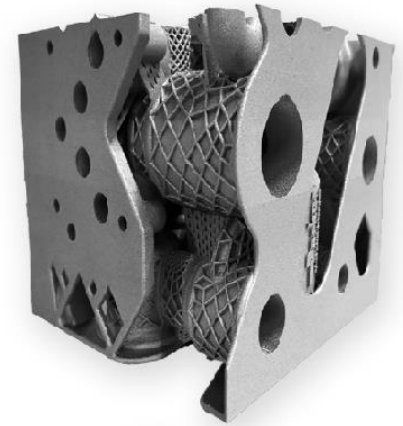


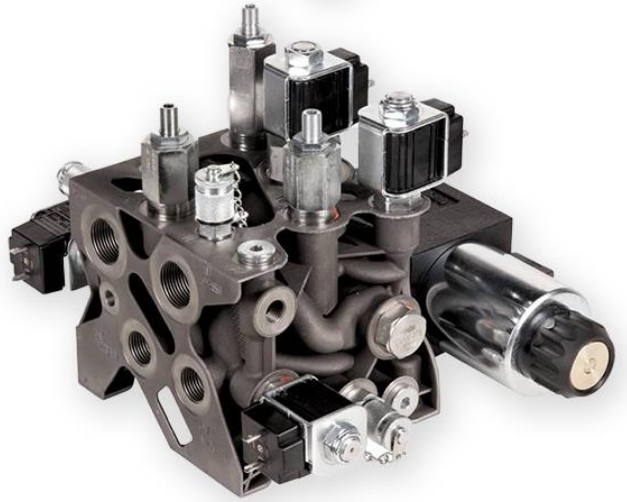
Reverse Engineering and replacement with direct energy deposition





Reverse Engineering and replacement with additive engineering to have better performance and to save cost from downtime implant





The AM valve manifold is well suited to use in oil and gas like SUBSEA to optimize space and weight.

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A multidisciplinary team

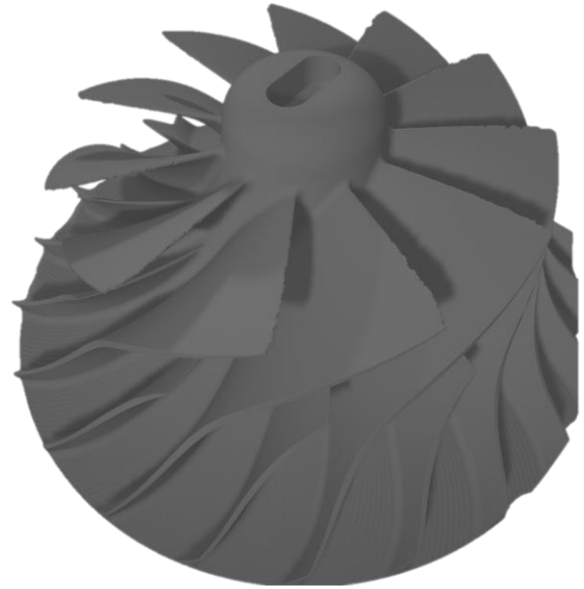
AMDengineering is not a sum of specialists: it is a system of integrated competencies, designed to tackle the technical complexity of high value-added sectors with method and precision.
Each professional figure covers a specific domain (from structural mechanics to numerical simulation, from Reverse Engineering to advanced manufacturing) ensuring full coverage across the entire component lifecycle.

Diverse skills, shared goal

The AMDengineering team reflects the company's own philosophy: approaching every project with the depth of those who know the technical detail and the vision of those who manage the entire process.

Mechanical engineers dialogue directly with those responsible for numerical simulation. The designer accounts for the manufacturer. Quality control is internally supervised by those who defined tolerances at the design stage.

This continuity of competencies eliminates information gaps between phases, reduces revision iterations and guarantees the client a single point of contact, technically qualified on every aspect of the project.



- Structural Engineering & FEA, CFD & Topology Optimization
- Reverse Engineering & 3D Metrology
- Advanced Manufacturing & Additive Manufacturing

The team is structured to scale: every project, regardless of complexity, finds in AMDengineering the technical and methodological resources to be managed with precision and reliability.

Oil & Gas Regulatory Example: Additive Manufacturing

Regulatory requirements for the production and mechanical processing of AM-printed components

Standard	Body	Year	Scope / Subject	O&G Application
API 20S (2nd ed.)	API	2024	Qualification of AM metallic processes and components	Upstream/downstream metallic components, 3 AMSL levels
API 20T	API	2022	AM-printed polymer components	Polymer seals, gaskets, housings for O&G
DNV-ST-B203	DNV	2020	AM metallic parts - qualification and production	Offshore, maritime and O&G: process and part qualification
ASME PTB-13	ASME	2021	AM-manufactured pressure components	Pressure vessels, valves, AM piping for plants
AWS D20.1	AWS	2019	Fabrication of metallic AM components	Welding and joints on AM parts, including O&G
ASTM F3001 / F3049	ASTM	Current	AM materials and powders (Ti, IN718, steels)	Material qualification for critical O&G components
ISO/ASTM 52900	ISO/ASTM	2021	AM process terminology and classification	Cross-sector reference standard for all industries
NORSOK M-630	NORSOK	Current	Material requirements for offshore equipment	AM material compatibility with H_2S / HPHT environments

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Why AMDengineering

5 reasons to choose us as your technical partner

01

Proprietary technology, measurable results

Full digital scan + workflow (CAD/FEA/CFD/3D printing) under one roof. We are not integrators: we are makers.

02

Flexibility and speed of response

Fast and scalable prototypes. No minimum order.

03

Critical spare parts

Through Reverse Engineering, we can replicate and improve any discontinued part, eliminating dependency on single or monopolistic suppliers.

04

Engineering approach, not just manufacturing

Every component is validated with FEA/CFD analysis before production. We bring engineering value, not just execution.

05

Single point of contact: from scan to delivery

A single supplier for design, prototyping, 3D printing, CNC machining and quality control. Zero lateral coordination.

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