



taltech

ENGINEERING YOUR IDEAS

POWERTRAIN

Design, production and testing of high-performance combustion engines and hybrid powertrains.



CHASSIS AND SUSPENSIONS

Design, virtual simulation, prototyping and tuning of chassis and suspensions



VEHICLE EQUIPMENT

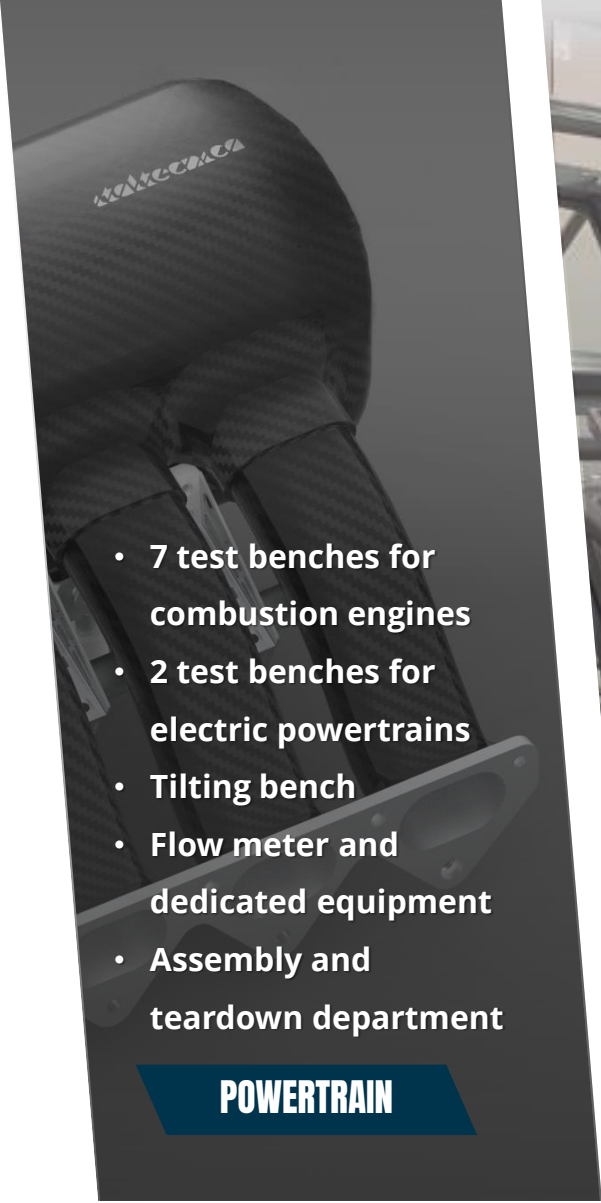
Engineering and validation of every kind of vehicle, including all the auxiliary systems (cooling, lubrication, fuel supply, HVAC, ecc.), engine/parts swap.




SERVICES

Italtecnica has proven experience in the combustion engines field, prototypes and special vehicles produced in small series.

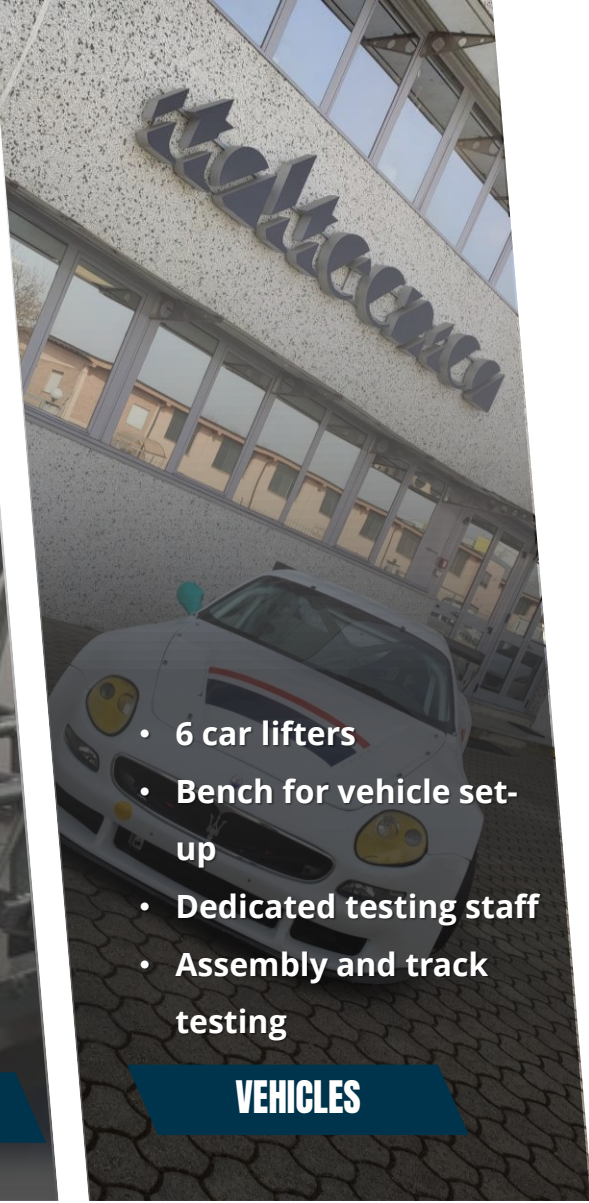
It guarantees a complete, turnkey offer: from the design, to the production and testing, for the construction of vehicles and high-performance powertrains.

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- 7 test benches for combustion engines
 - 2 test benches for electric powertrains
 - Tilting bench
 - Flow meter and dedicated equipment
 - Assembly and teardown department

POWERTRAIN

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- Control plate with *measurement machine*
 - TIG and MIG welding
 - Laser cutting
 - CNC machining

CHASSIS-SUSPENSIONS

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- 6 car lifters
 - Bench for vehicle set-up
 - Dedicated testing staff
 - Assembly and track testing

VEHICLES

KNOW-HOW

Italtecnica combines the technical *know how* of its specialized team to a *client-driven* approach, oriented to the problem solving. Flexibility and adaptation are abilities acquired in the racing environment and then transferred to all the projects. A tight bond with the suppliers and a solid network with international partners make the company an excellence.

THE MORE WE PROGRESS, THE BETTER YOU ADVANCE.

Italtecnica is composed by a team of qualified, highly experienced technicians that follow the projects in all the phases, designing and assembling the engines and the most complex vehicles.

The history and the projects successfully completed denote the ability to provide a service of high technical level, tailored to the needs of each customer.

Designing of the preliminary virtual model

IDEA



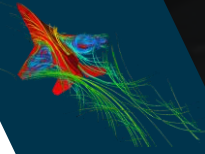
01-DIMENSIONAL SIMULATION

Defining of the main engine characteristics



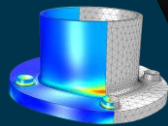
CFD SIMULATION

Optimizing flows inside the engine



FEM SIMULATION

Optimizing of the most stressed parts



VALIDATION AND TESTING

Production, checking and test benching of the prototype #0



YOU

Assembling and delivery to customer



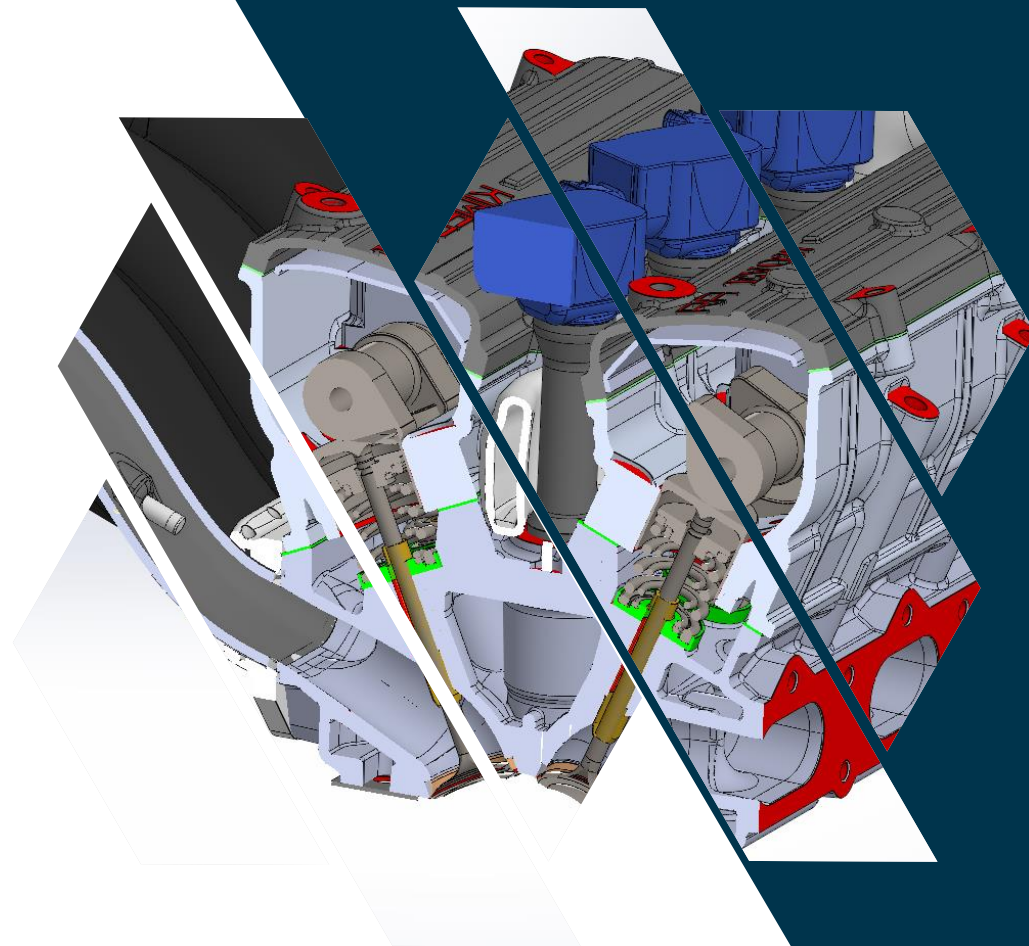
Powertrain: from idea to you

Italtecnica with highly expertise engineers and technicians follow every steps; from preliminary idea to production.

IDEA

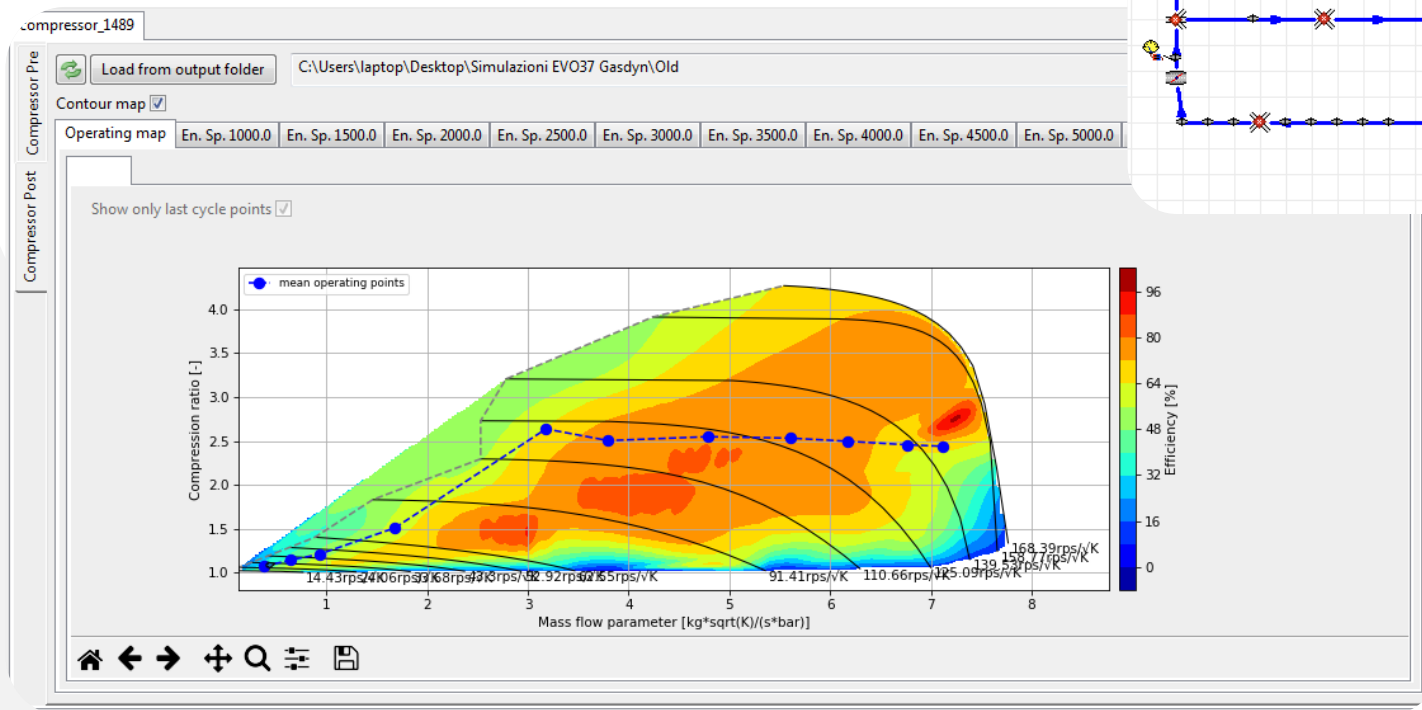
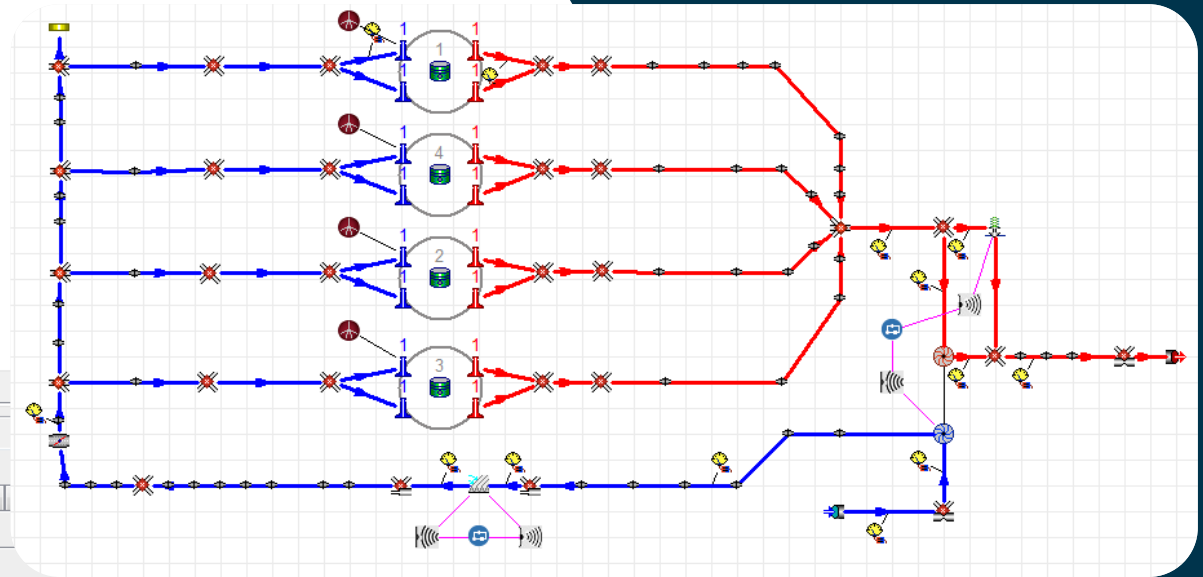
Starting from the customer needs a preliminary 3D CAD model is designed.

All the components are deeply analyzed to satisfy the higher quality standards and the CAD model is continuously updated during all the process following the simulation results.



01-DIMENSIONAL SIMULATION

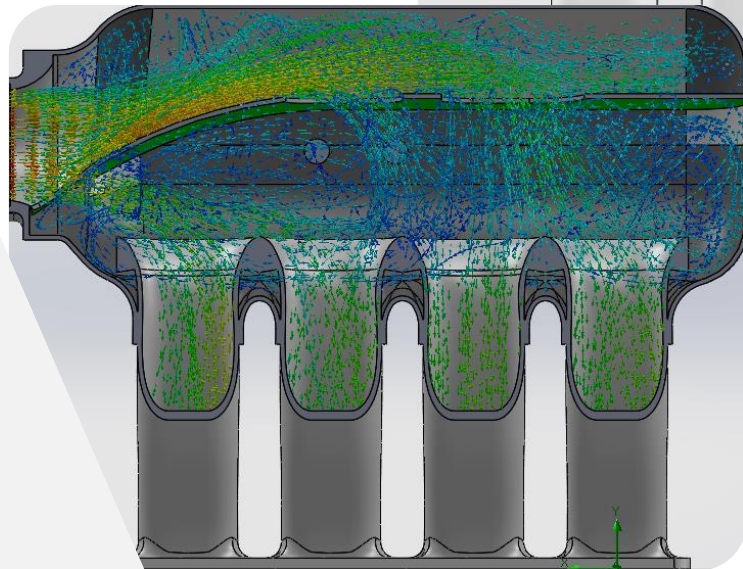
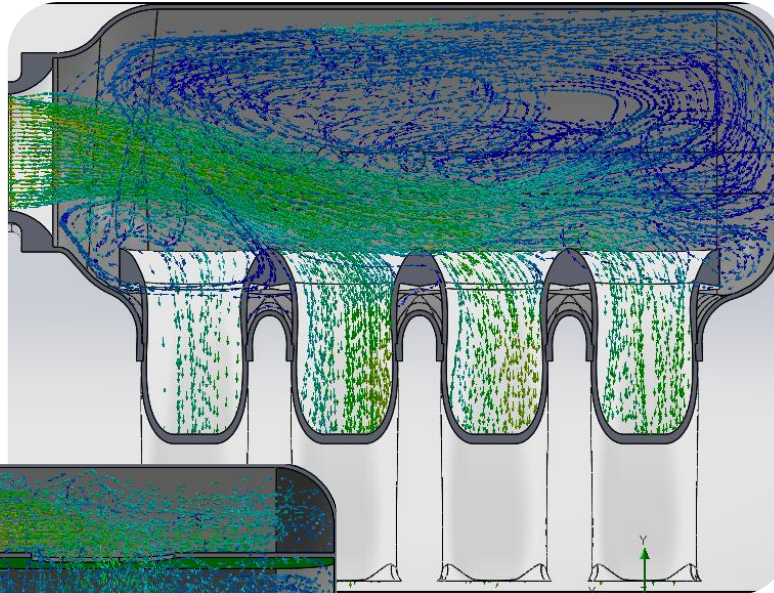
The very first engineering phase is the 01-Dimensional simulation of the complete engine, where all the main characteristics of the engine are defined. This analysis is performed using a specific tool "GasDyn" developed in partnership with Milan polytechnic.



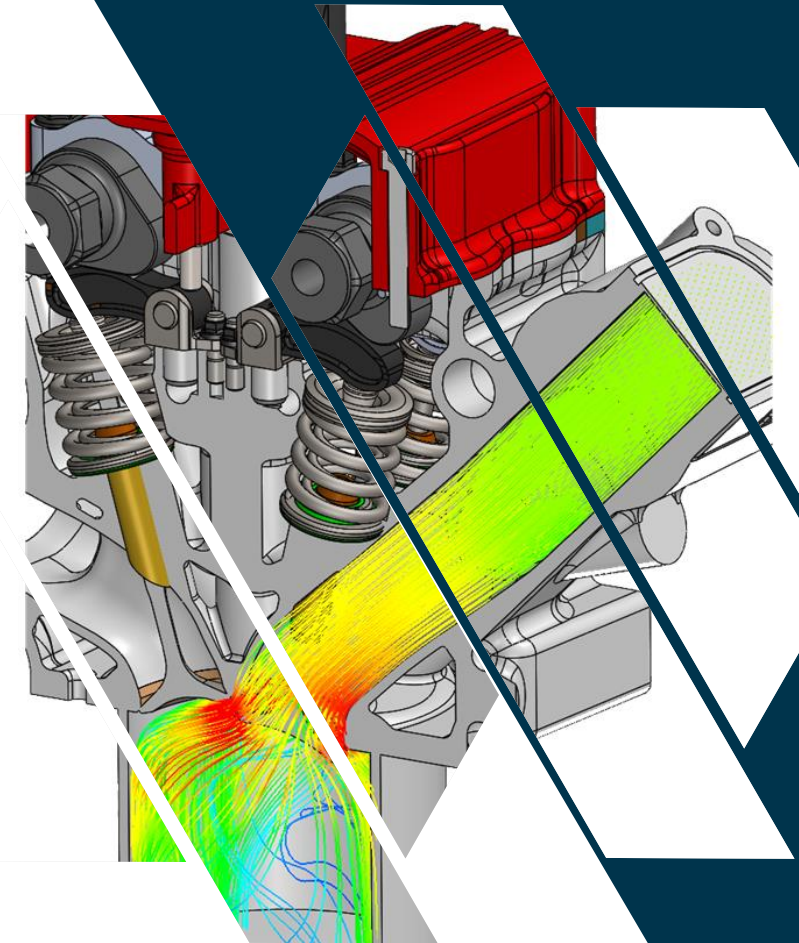
CFD SIMULATION

All the engine flows are simulated using specific software and optimized in order to reduce dimension and cost of the parts and improve performances

Pre optimization

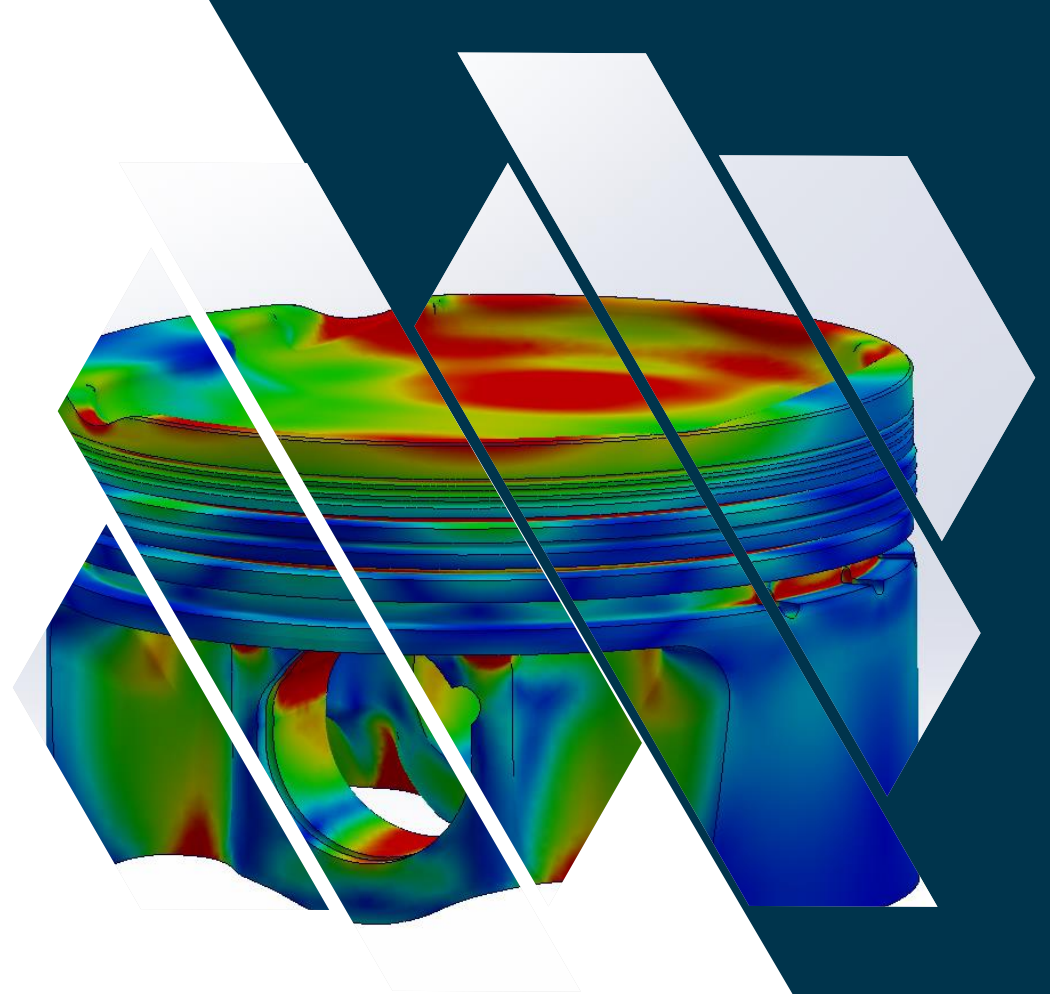
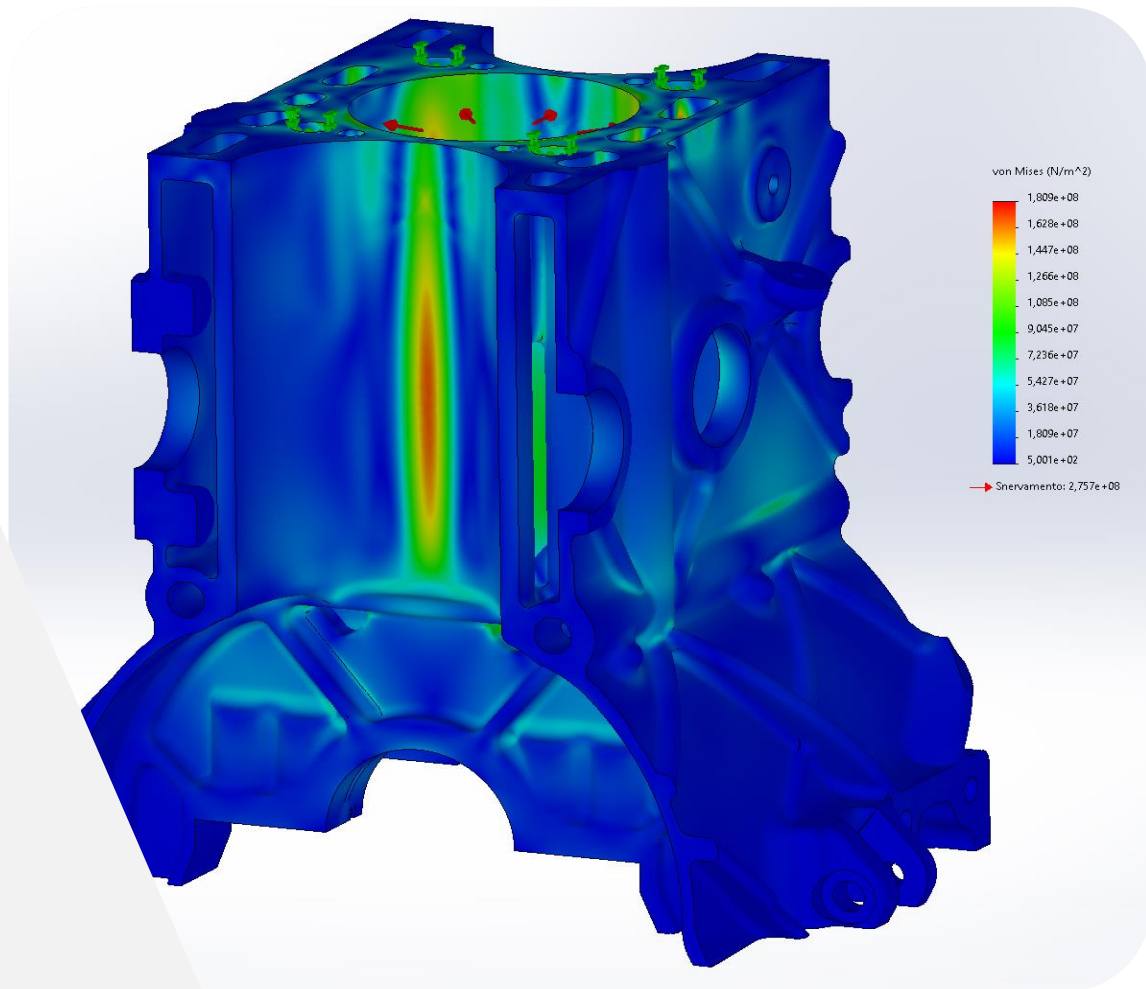


Post optimization



FEM SIMULATION

All the stressed components are simulated using specific software and optimized in order to reduce weight and cost of the parts and improve reliability and performance



VALIDATION AND TESTING

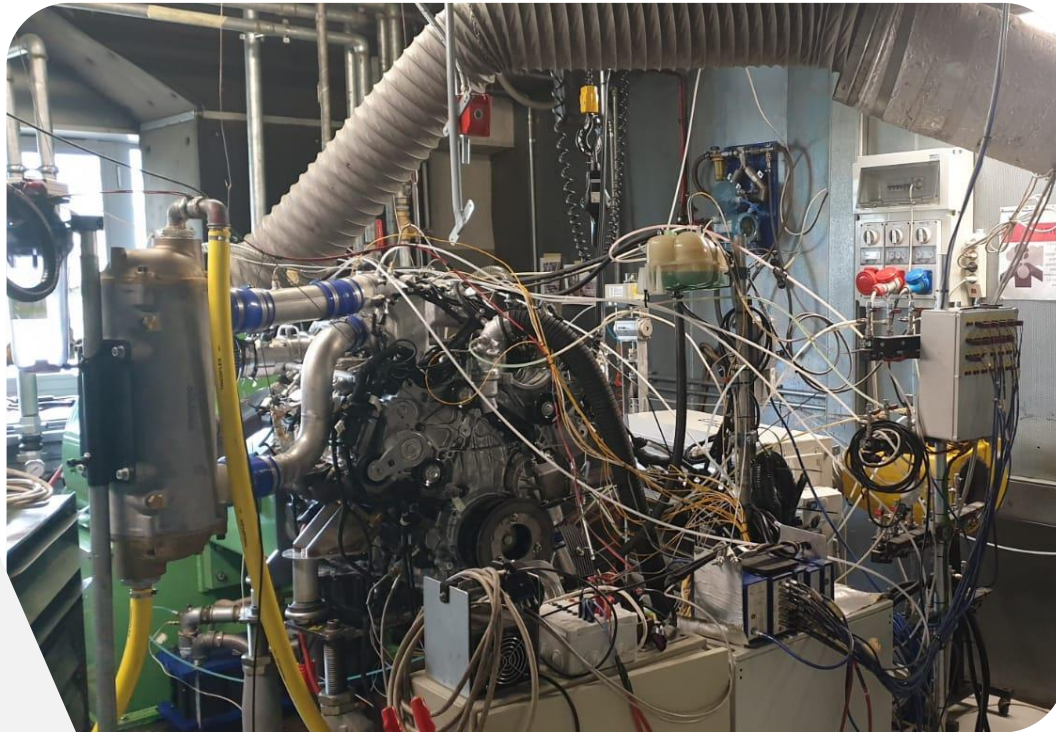
A preliminary physical prototype is produced using technologies like 3d metal printing, CNC Machining and sand casting.

All the parts are dimensionally checked, the virtual simulations are cold tested and validated using physical parts, with flow benches and specific instruments.



VALIDATION AND TESTING

The engine #0 prototype is assembled, during assembling all the main characteristics are checked. The complete engine is installed in one of our seven test benches where the functions and the performances are checked. ONLY when the validation process is completed, the production can start with engine #1



↓ YOU

The most critical parts are dimensional checked before installation.

All the engines are assembled by highly specialized technicians and, if required, are tested on a test bench before shipping to the customer.

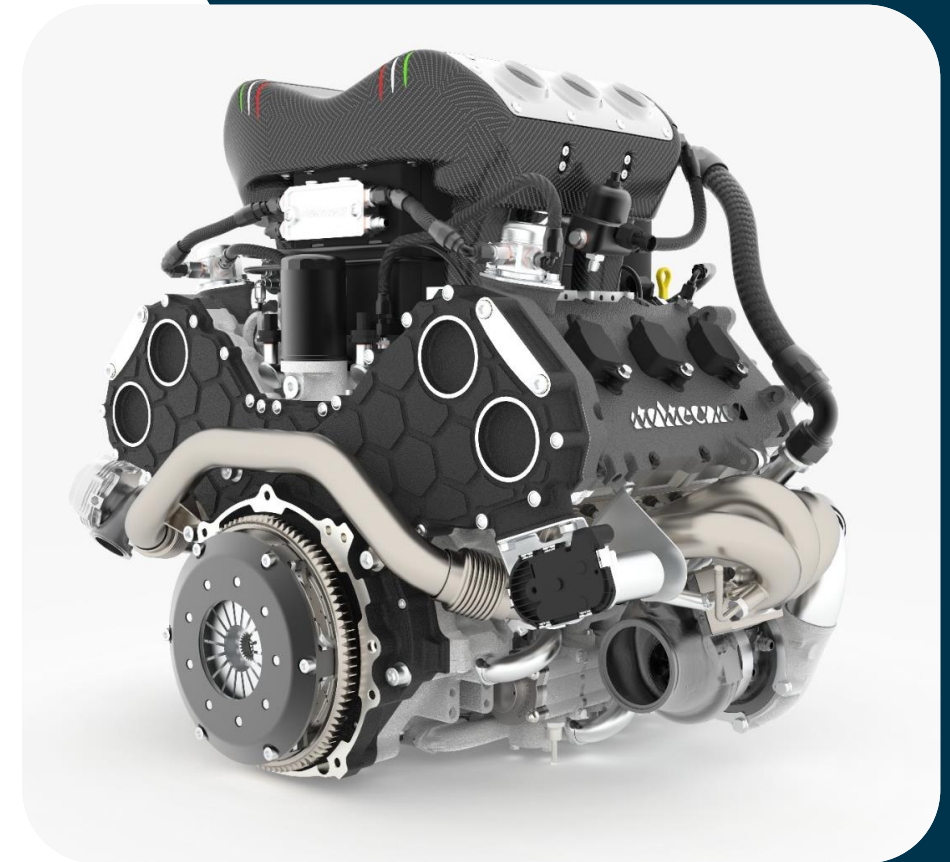
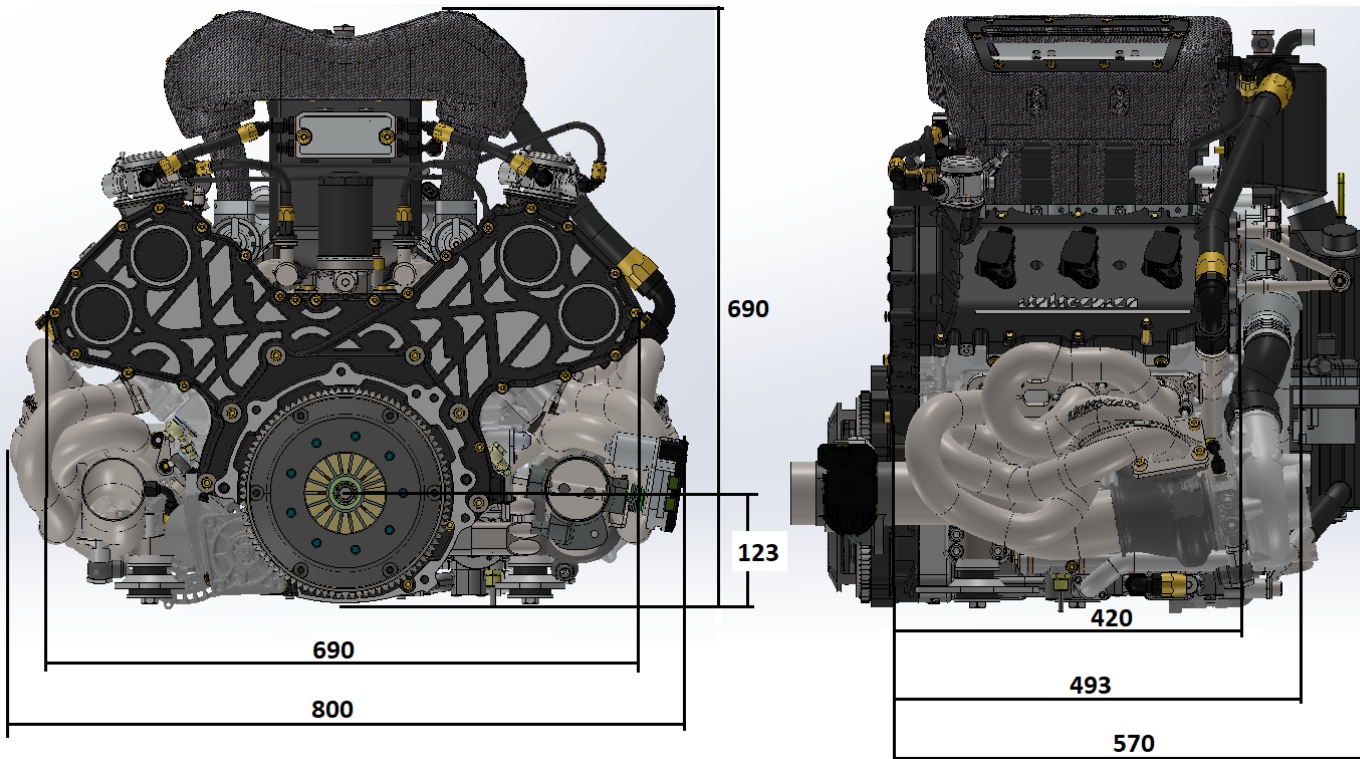


V6 Engine

The V6 Engine is our top-class engine; completely engineered, developed, tested and produced by our expert engineer and technicians.

The engine dimensions compete with top premium brands and ALL the secondary systems are integrated (lubrication, air cooling, etc.); the customer only have to connect fuel and water pipes for engine and air cooling.

Exhaust manifolds, oil tank and timing cover could be designed and positioned following customer needs.



V6 Engine

V6 Engine

Cylinder layout	V6 - 90°
Lubrication	4 stages dry sump oil pump (3 scavenging + 1 delivery). Engine integrated oil filter, 6 liters tank, cooler
Timing	DOHC 4 valves per cylinder with rocker arms actuation
Turbocharging	Electronically managed sequential double turbocharger with bypass valve and single wastegate
Throttle bodies	Electronically managed 6 throttle barrels
Intercooler	Engine integrated air/liquid intercooler and electronic pump
Ignition system	Electronically managed with 6 plug top coils
Injection	Integrated gasoline distributor. Intake manifold integrated 6 port fuel injectors with pressure regulator. 6 gasoline direct injectors with double HP pump
Weight	<180kg



V6 Engine

HISTORY AND PARTNERS



RALLY AND TRACK COMPETITIONS

Management of racing team Peugeot Sport Italia, development of GT Ferrari and Maserati, vehicles for raid Mitsubishi



PROTOTYPES BUILDING

Realization and studies of rolling chassis for Pininfarina, Italdesign, Cecom, Spada Concept, FCA

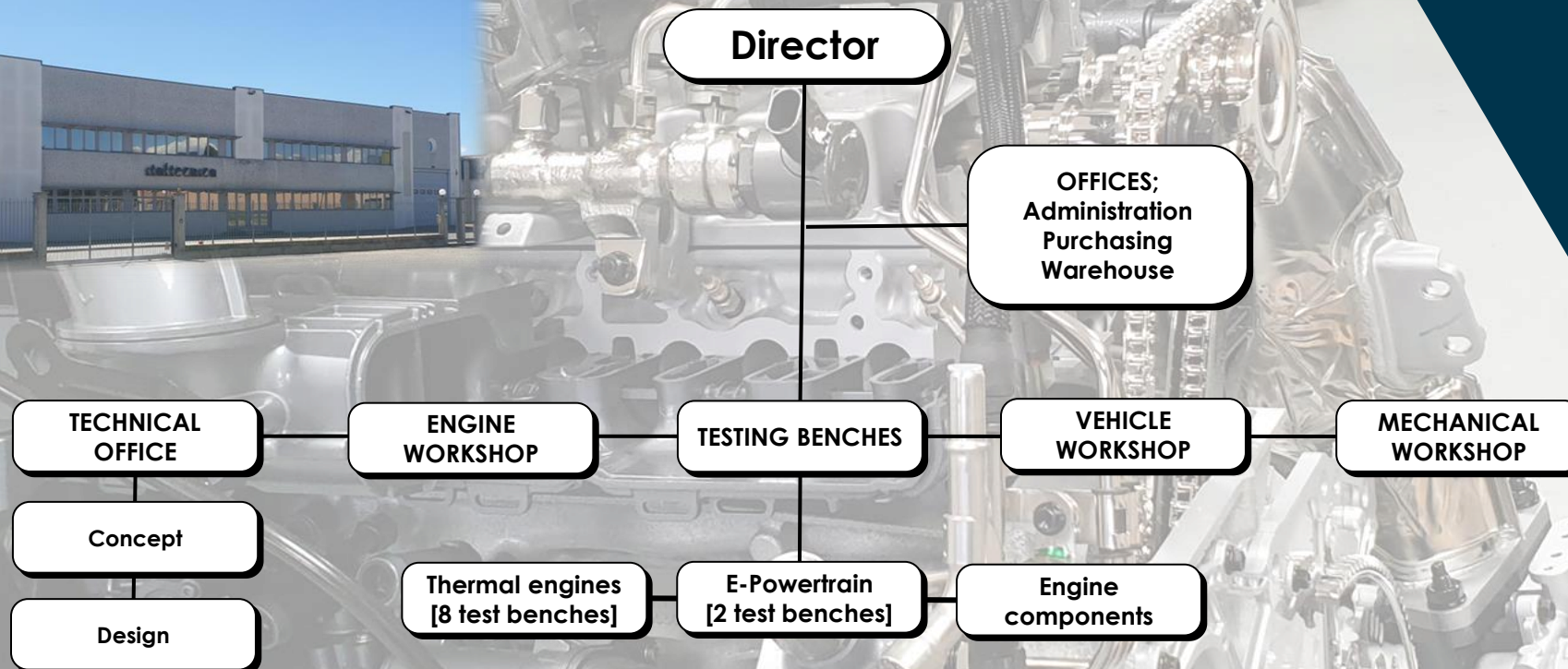


POWER UNITS DEVELOPMENT

Testing and validation (R&D) in partnership with General Motors, Punch Group, NGV Powertrain, Iveco, Abarth, Maserati



FACILITY & TEAM



Consultant: Ing. Claudio Lombardi

Direct staff: 18 people

Plant dimension: 3000m²

ITALTECNICA & INNOVATION

FBS project: base idea and motivation

Efficiency \geq
engines Diesel

Reduced
pollutant
emissions



FBS
combustion
system



The idea at the base of the FBS project is to have a combustion system that allows a **stable functioning of spark ignition engines with very lean air/fuel mixtures**, with a considerable reduction in the specific fuel consumption, CO₂ and pollutant emissions.

This system called FBS (Fast Burning Cycle), is patented.

Loredana Guglielmetti Firmato da: ulm-
brevetti
Roma, 28 gennaio

Ministero dello Sviluppo Economico
Direzione generale per la tutela della proprietà industriale
Ufficio Italiano Brevetti e Marchi

ATTESTATO DI BREVETTO PER INVENZIONE INDUSTRIALE

Il presente brevetto viene concesso per l'invenzione oggetto della domanda:

N. 102019000602983

TITOLARE/E: • Italtecnica S.r.l. 100.0%

DOMICILIO: Saglietti Luigi
Saglietti e Associati
corso Vittorio Emanuele II, 82
10128 Torino

INVENTORE/E: • LOMBARDI Claudio

TITOLO: SISTEMA E PROCEDIMENTO DI COMBUSTIONE PER MOTORI A COMBUSTIONE
INTERNA AD ACCENSIONE COMANDATA

CLASSIFICA: F02B

DATA DEPOSITO: 01/03/2019

Roma, 28/01/2021

Il Dirigente della Divisione VII
Loredana Guglielmetti

ITALTECNICA & INNOVATION

Hydrogen ICEs

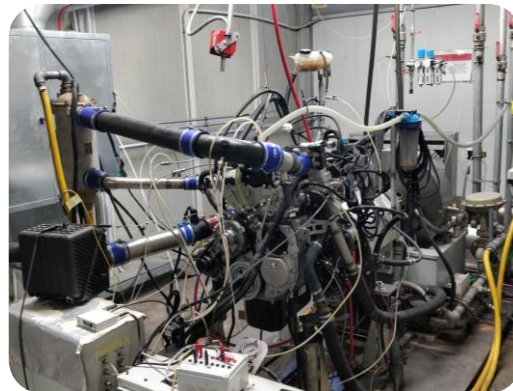
Italtecnica always look to the future.

Our highly expert engineers successfully tested different projects of hydrogen ICEs, with some relevant benefits:

- **ZERO** greenhouse gases and particulates (Full Hydrogen mode);
- Relative **short design period**
- **Large application perspective** with small investment by the customers
- In comparison with the fuel cell, it could be faster to apply in a large scale in order to have a **swift reduction of pollution** in urban environment



V8 Engine during assembling phase in Italtecnica



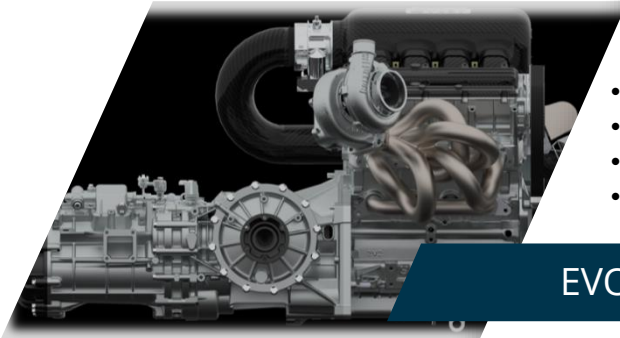
4Cyl Engine during testing phase in Italtecnica



V8 Engine during expo presentation

THE PROJECTS

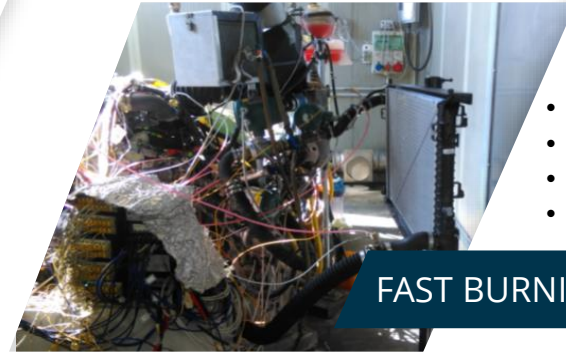
** Only not confidential projects are reported.*



POWER UNIT

- Engine design from scratch
- Components building
- Test and optimization
- Production in small volume

EVO 37



INNOVATIVE ENGINE

(Partnership with Claudio Lombardi and Polimi)

- Combustion system patent
- Prototype design and building
- Combustion optimization in tests bench
- Version 30% hydrogen 70% Biogas

FAST BURNING SYSTEM



ICE CALIBRATION AND TEST

- Proto engines construction
- Development, calibration and tear down (in partnership with GM)

GM L3, L4, L6 ENGINES



ROLLING CHASSIS

- Engine enhancement
- Transmission modification
- Suspensions redesign

VULCANO



DEVEL16

ROLLING CHASSIS

- Engine enhancement
- Transmission modification
- Chassis & suspensions redesign & construction
- Vehicle development



S4 TRIFLUX

GR-S 1987 VERSION

- Triflux engine construction & development
- Chassis & suspensions construction
- Vehicle development on track

EXPERIMENTAL PROJECTS

Collaboration to the assembly of
M138, M139, F137, F141
At Ferrari racing department

PROTOTYPES



M138

GT3 VERSION

- Engine enhancement
- Suspensions redesign
- Vehicle transformation

GT 1 ENGINES

- GT1 engine development in collaboration with Maserati Corse
- Racing engines management

MC12



M138 + GHIBLI

TROFEO VERSIONS

- Transformation of first 5 vehicles and modification kits
- Assistance to the Maserati assembly line for the transformation of the following vehicles



COUPÈ AND SPIDER VERSION

- Engine enhancement
- Chassis modification
- Vehicle transformation

CODATRONCA



1° HYBRID RALLY VEHICLE

- Hybrid layout study (in partnership with PoliTo)
- Components design
- Construction and testing

037 HYBRID



RAID E DAKAR VERSIONS

- Engine development (partnership with Mistubishi)
- Suspensions redesign
- Chassis rigidity increased

PAJERO



PROTOTYPE

- Rolling chassis and suspension construction
- Electric powertrain test and optimization

REDSpace



ONE-OFF

- V12 powertrain adaptation (partnership with Maserati corse)
- Vehicle outfitting in partnership with Pininfarina

BIRDCAGE



FIA GT1 championship cars

- Engine development and suspensions
- Track management

F550

MAIN CUSTOMERS AND PARTNERS



Politecnico di Torino



POLITECNICO MILANO 1863



Maggiore

NARDONE

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