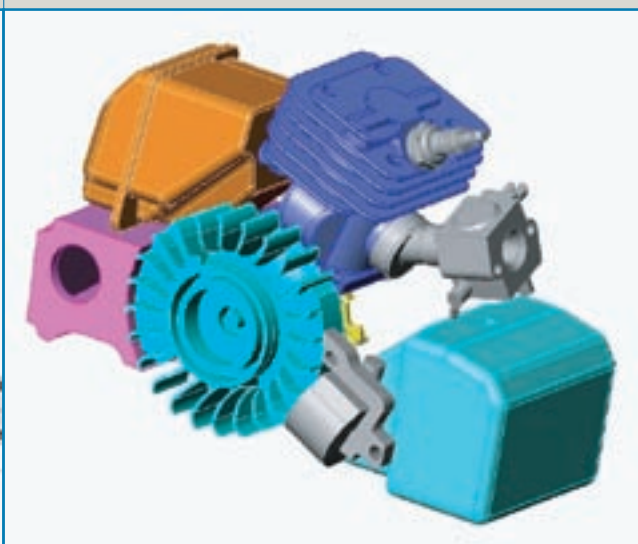
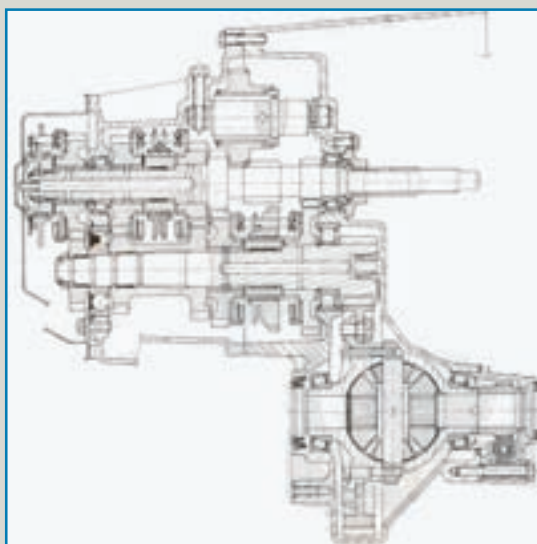
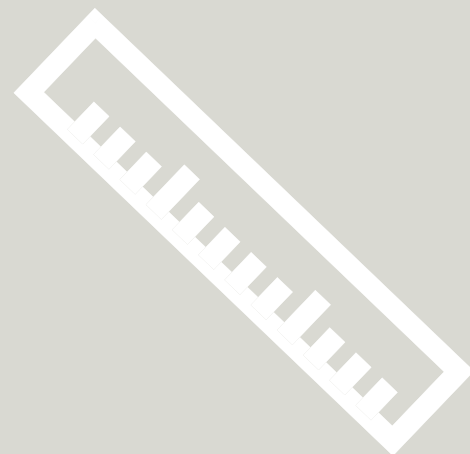


*Complete Engine
Full Powertrain Assembly
Gear Boxes
Wheel fs Shaft
Coupling Shaft
Bearings Setting
Aerospatial Models
Specific Test Machines*

...

*Founded in 1989, by Daniel DRECQ an engine engineer,
to build up a French innovative engine & powertrain
R&D and testing centre,*

D2T has shown a strong steady growth, and has continuously developed products and services dedicated to engine and powertrain R&D and testing. Thanks to an active partnership with aerospace R&D centres, D2T was able to develop tribological models for aerospace environment. These models are integrated in D2T's simulation tools, and allow us to propose a very innovative technological transfer between both aeronautic and automotive fields.



PRESENTATION

ISO 9001 certified, D2T's engineering office is using latest computation tools and aerospace models. Highly qualified and experienced staff allows D2T to realize projects within necessary confidentiality.

COLLABORATORS

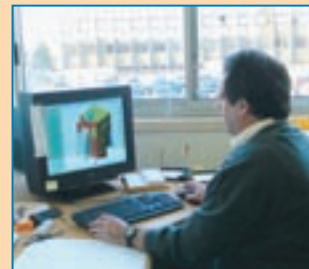
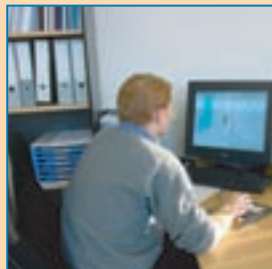
Selected from most famous engineering high schools all our team members are passionately involved in creating innovative solution for powertrain engineering.

D2T R&D engineering team is made of:

- 30% of Professor, PhD and master engineers.
- 50% of mechanical and engine engineers.
- 20% of technician.

All of them have a significant experience for several years about powertrain research and development.

In order to achieve strictly confidential research and development work, D2T can organise specific team located in different offices with restricted access area.



COMPUTATION AND DRAWING TOOLS

CAD systems:

- Catia
- Solidworks
- Autocad

FEA – Thermal and Modal Analysis:

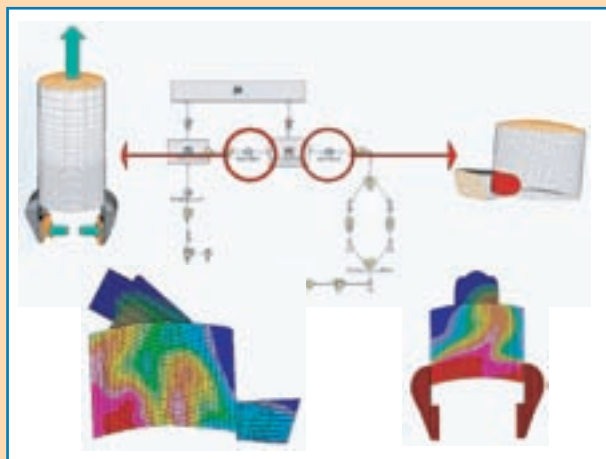
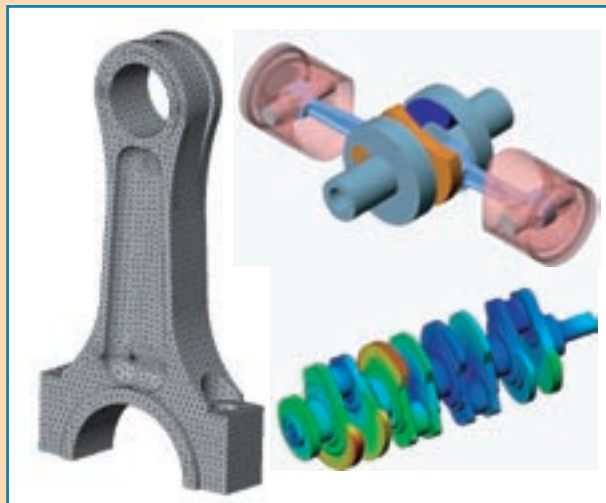
- COSMOSWORKS
- Acorde : Beam & Shell Static and Dynamic Finite Element Analysis

CFD systems:

- FLOWWORKS
- Star-CD

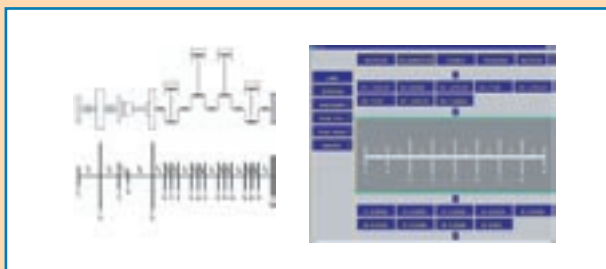
Engine & Powertrain simulation:

- GT-Power : 1D Thermal Engine Simulation
- Matlab – Simulink for Specific Calculation



SPECIFIC D2T'S MODELING AND SIMULATION TOOLS

Since many years D2T, and aerospace R&D centres (SEP-Snecma,CNES) have established a partnership to develop new calculation models. Development time invested in these models is of more than 20 men a year.



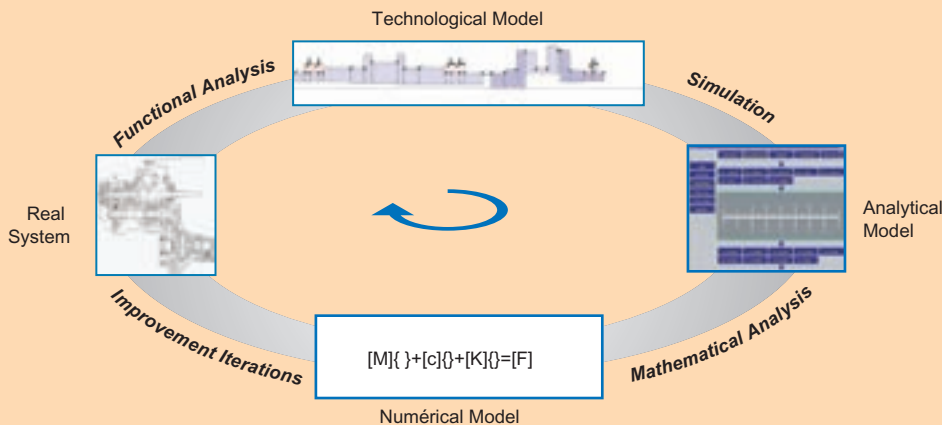
D2T MODELLING TOOLS:

- **Vibmot** : Shaft fs & Crankshaft fs Torsional Vibration and Firing Order Optimisation
- **RBSDYN** : Ball Bearing Preload and Statical Bending Vibrations
- **Viflex** : Shaft fs Bending Vibrations
- **RMS4 and CAROL** : Ball and Roller Bearings Calculation

A technological transfer from aerospace to automotive industry is performed throughout these models and tools. It allows D2T to offer innovative and unique engine, gear-box and differential conceptions, ...



D2T'S DEVELOPMENT LOOP



All D2T products are warranted against defects in materials and workmanship for one year from date of delivery to the original purchaser. Specifications are subject to change without notice.

FIELDS OF COMPETENCES

POWERTRAIN ENGINEERING :

D2T has already applied its development loop and know-how on powertrain applications :

- Crankshaft development
- Vibration calculation on shaft lines,
- Diesel engine development for car races,
- Whole engineering of very high speed R&D single cylinder engine.
- Powertrain and engine preparation.
- Exhaust line installation.
- Engine and parts evaluation after tests.
- Full Industrialization Engineering of a 2.0 L Gasoline Engine with ECU
- Fuel Injection and turbo specification for a 2.5 L IDI Diesel Engine
- Piston Rings Pack Tuning for Gasoline and Diesel Engine for Cars and Heavy Duty
- Electro-Hydraulic or Electro-magnetic Camless Single Cylinder Gasoline Engine Development
- New Electro-Hydraulic Injection System Development for Diesel Engine
- Hydraulic Scavenging Simulation Machine for Small 2 Stroke Gasoline Engine



EXAMPLE

FROM THE SPECIFICATION TO THE PROTOTYPE

