**Engine** 

**Innovation** 

Expertise

R&D



**Testing** 

**NVH** 

Development

Flexibility

## **NVH SPECIALISTS**



### **ABOUT US**

CRITT M2A is an independent research centre set on over 7.000 sqm, considered as a major player in testing and R&D services.

Organized into 4 technical activities: engine, NVH, turbocharger and electric, CRITT M2A offers its expertise and provides high-technology test means to automotive, rail and aeronautic industries.

With its R&D activity, CRITT M2A has developed strong skills recognized in France and Worldwide as well as several public and academic partnerships of excellence.









### **OUR SERVICES**



CRITT M2A brings together acoustic and vibration test methods that are exceptional in terms of their diversity and their complementarity. The various works carried out by CRITT M2A have enabled our center to become a major player in research and development programs in its fields of activity (REVA, CISIT, ECOBEX etc.).

The NVH department has a strong interaction with the engine and turbo activities. Studies have been carried out on the turbo as an acoustic source (external radiation and propagation of waves in the intake air line).

Equipped with PAK Muller-BBM measuring systems, CRITT M2A carries out all types of tests (acoustic transparency,...) on vehicles, engines and components: air intake systems, timing belts, engine encapsulation, covers...

## Performance

Solutions



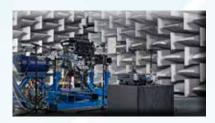
## **Validation**

Turbo

**Energy storage** 

# Confidentiality

## **OUR EQUIPMENTS**



#### **FULL ANECHOIC POWERTRAIN BENCH**

- 300 kW/1400 Nm/8000 rpm
- Background noise: 17 dB(A)
- Crossover Frequency: 70 Hz



#### **ROLLER TEST BENCH IN SEMI-ANECHOIC ROOM**

- Volume: 410 m<sup>3</sup>
- Background noise: 15 dB(A)
- Crossover Frequency: 70 Hz
- Vehicle speed up to 200 km/h (83 kW/3340 Nm par roller)



#### **3 REVERBERATING ROOMS**

- Volume: 76 m<sup>3</sup>, 210 m<sup>3</sup>, 136 m<sup>3</sup>
- Room with interfaces for acoustic transparency measurements



### **NOISE TEST TRACK**

- Length 900 m
- ISO 10844 measurement area for pass-by noise testings (standard ECE R51-03)
- 26% slop for automatic gear boxes tests
- Sound reflecting wall



#### SPECIFIC EQUIPMENTS

- Laser vibrometer
- High level sound source
- Anechoic termination
- Acoustic array
- Impact hammer
- Electrodynamic shaker from 5 kN to 53 kN



**CONTACTS** 

**Arnaud LEVECQUE Executive Business Manager** alevecque@crittm2a.com +33 (0) 391 800 213 +33 (0) 674 964 355

Philippe LAGASSE **Business Manager** plagasse@crittm2a.com +33 (0) 391 800 211 +33 (0) 679 708 131

Jean-Maxime BOULANGER **Business Manager** jboulanger@crittm2a.com +33 (0) 391 800 255 +33 (0) 786 899 426