

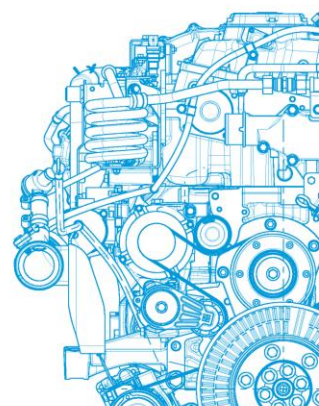
## FACT SHEET

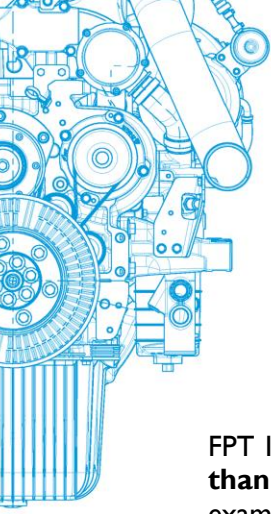
### FPT INDUSTRIAL RESEARCH AND DEVELOPMENT CENTERS: A WORLDWIDE PRESENCE

Turin, October 30, 2017



**FPT Industrial has always been dedicated to the technological excellence** of its products throughout all its long history. FPT Industrial was the first to develop and produce a turbocharged heavy duty engine in 1938, a direct injection light diesel in 1985, EGR on diesel engines for LCV in 1989, a Variable Geometry **Turbocharger** for heavy duty engines in 1998, the **Electronic Common Rail** for commercial vehicles in 1999 and for off-road applications in 2002.





FPT Industrial has **seven Research & Development Centers all over the world and more than 140 testing facilities**. Each site with a different specialization: Arbon, in Switzerland, for example, is the excellence center for advanced technologies, where the Common Rail technology in 1999 and the HI-eSCR – High Efficiency Selective Catalytic Reduction system – in 2012 were developed. In Europe, FPT Industrial has four Research and Development centers. Beside Arbon, FPT Industrial is present in **Fécamp**, in France, where it customizes and homologates power generation units, and in Italy with two R&D facilities: **Turin**, which has the largest number of testing facilities and a strong focus on Natural Gas technologies development within FPT Industrial's world (51 total engine testing benches, 30 driveline testing benches, 8 climatic room & special facilities and 1 chassis roller dyno) and **Foggia**, where, together with Turin, NG technologies for the Worldwide markets are developed.

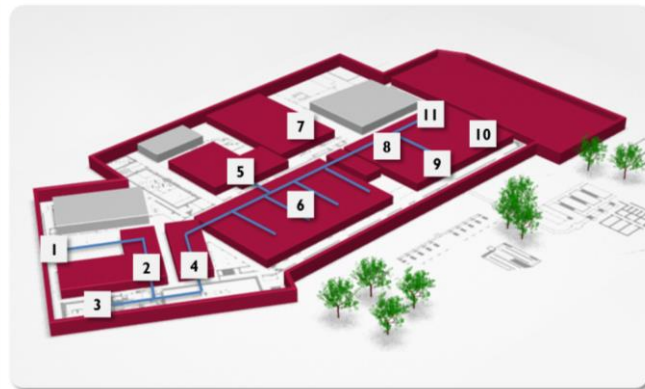
In the United States, FPT Industrial is present with its **Burr Ridge** R&D Center dedicated to engines applications for CNH Industrial and US non-captive customers; in Brazil, in **Betim**, FPT Industrial customizes its engines and applications for the Latin American market; while in **Chongqing**, in China, SFH (FPT Industrial joint venture) dedicates its work to engines customization and applications for the Asian market.

## THE GREEN HEART OF THE TURIN TESTING CENTER



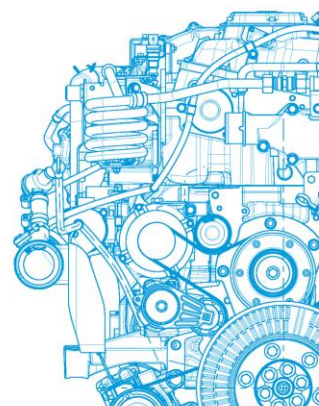
### STATIONS:

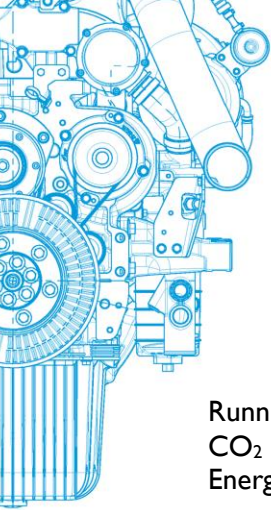
- 1 Entrance in Green Corner Area
- 2 Engine test Cells (Cursor 13 CNG – 16)
- 3 Roller dyno + Emission bench for light duty vehicles
- 4 Engine Cells Homologation and CNG
- 5 Proto assembly - Setup / Vertical warehouse
- 6 Engine test cells
- 7 Driveline Workshop – Vertical load
- 8 Powertrain hybrid
- 9 Tilting test cell
- 10 Semi - anechoic test cell
- 11 Climatic - barometric test cell



### Profile of Turin Testing Center in numbers

Turin Testing Center surface:	28,000 sqm
Employees:	more than 400
Engine Test Benches (Diesel and CNG):	51
Driveline Test Benches:	30
Natural Gas dedicated Testing Cells:	10





# TECH DAY 2016

## NATURAL GAS TECHNOLOGIES

Running hours:	140,000 hrs/year
CO <sub>2</sub> emissions reduction:	2,000 ton/year
Energy self produced:	2.700.000 kWh/year

FPT Industrial's **Turin Testing Center** has created a "**green factory**" which has increased the energy efficiency of processes and reduced CO<sub>2</sub> emissions. The theme of "innovation" continues as a driving factor. The Turin Testing Center is considered a global reference point for the development and certification of engines and after-treatment systems, as well as the development of axles and transmissions for both CNH Industrial sister brands and our customers worldwide. Since 2014, renewal processes centered on experimentation and improvement have led radical change to result in zero environmental impact.

This renovation involved the entire location, which covers an area of **28,000 square meters** (over 30,000 square feet), and encases an environment where nearly 400 people are employed, including engineers, specialized technicians and other professionals. In recent years, the Turin Testing Center features new test cells, custom developed for physical road testing. Today, the area has a total of **90 test cells**. For example, the **climatic-barometer test cell** boasts a groundbreaking instrumentation and control system: here you can set and reproduce weather-climatic parameters **from -35 to +40 Celsius degrees** (-36 to +104 degrees Fahrenheit) and simulate altitude conditions that can vary from sea level to 4,000 meters (over 13,000 feet) of altitude.

Other flagships cells are dedicated to the development of hybrid light vehicles equipped with a "**battery simulator**". Also, there is a "tilting" cell, in which engines with maximum 45 degree inclinations are tested on all axes to simulate special applications such as agricultural, marine and quarrying. Focus on sustainability and consumption also involves working environments with maintenance and renewal interventions within the buildings. In all areas, lighting systems have been **converted to LED** with control management systems, and concentrated thermodynamic solar plants - such as **Trinum** - have been introduced. This produces electricity and hot water throughout the building, with an important saving on water consumption. Overall, it is the mindset of evolving change and drive for continuous improvement that is most impactful. Thanks to all these activities **FPT Industrial's "green heart" during 2016 was able to self-produce energy for over 2,700,000 kWh.**

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