



Engines and Transmissions



POWERING THE FUTURE

FIAT
GROUP

Fiat, Fabbrica Italiana Automobili Torino, was founded in 1899 by a group of investors and entrepreneurs, including Giovanni Agnelli.

Over the years, Fiat has become an international group that performs industrial and service activities in the automotive sector in more than 160 countries, employing about 170 thousand people.



Fiat Spa is quoted on the Milan Stock Exchange and its shares are traded in Frankfurt, Paris, London and New York

Fiat Group corporate structure



CARS

100%



85%



AGRICULTURAL AND CONSTRUCTION MACHINERY

90%



COMMERCIAL VEHICLES

100%



COMPONENTS AND PRODUCTION SYSTEMS

100%



100%



85%

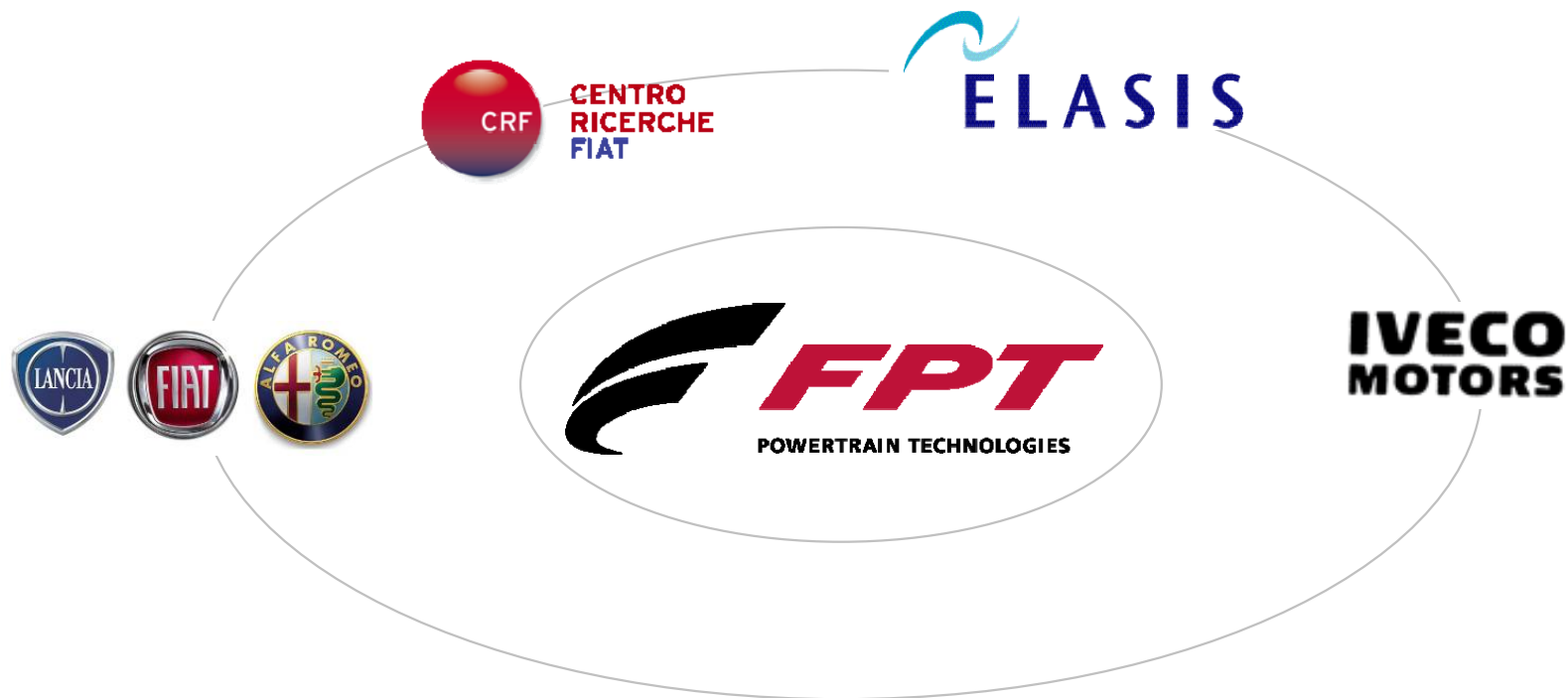


PUBLISHING AND COMMUNICATION

100%



FPT unifies all the innovation capabilities and expertise in the design, development, production and sales of engines and transmissions.



POWERING THE FUTURE

- ✦ Development of **non-captive market**
- ✦ Enhancement of **technological excellence** and systematic transfer of results to the product range
- ✦ Integration of **engineering capabilities** throughout all the product life-cycle
- ✦ **Synergies in all the processes**
- ✦ Focus on R&D investments for **environmental friendly and alternative powertrain systems**



CUSTOMERS

PEOPLE

**PASSION FOR
INNOVATION**



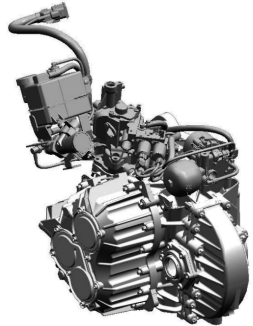
- Product innovation and continuous improvement for customers' satisfaction
- Highly motivated and trained people constantly working for the quality of all the processes
- A true passion for research on environmental friendly and alternative powertrain



FPT can satisfy almost any powertrain request thanks to an extremely wide range of **PRODUCTS**:

- ✦ **engines** (with a power from 20 up to 1020 hp and displacements from 1,000 to 20,100 cc)
- ✦ **transmissions** (covering from 143 to 400 Nm)

and **APPLICATIONS**



- ✦ **automotive** (cars, commercial vehicles, trucks, buses, special vehicles)
- ✦ **industrial** (construction equipment, agricultural machinery and stationary applications)
- ✦ **marine** (pleasure and professional applications)
- ✦ **power generation** (generating sets)

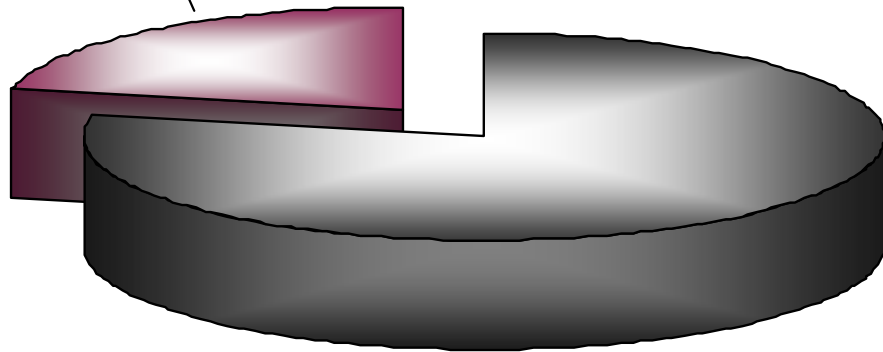


The activities of research and advanced engineering ensure the technological excellence of the Company. All these activities are included in the **Powertrain Research & Technology** function.

Sales (Mn€)	7,000
R&D Expend (% on sales)	7,1 %
Cap. Expend (% on sales)	11,3 %
Employees	20,507
R&D employees	2.511
Annual output of	2.9 mn engines 2.4 mn gearboxes & axels

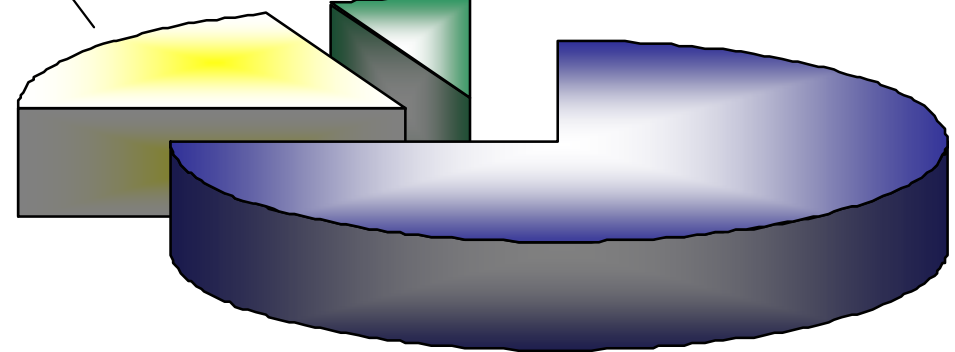
Total Sales 2008: 7,000 mn €

External Sales
1,509 € mn
21,6%



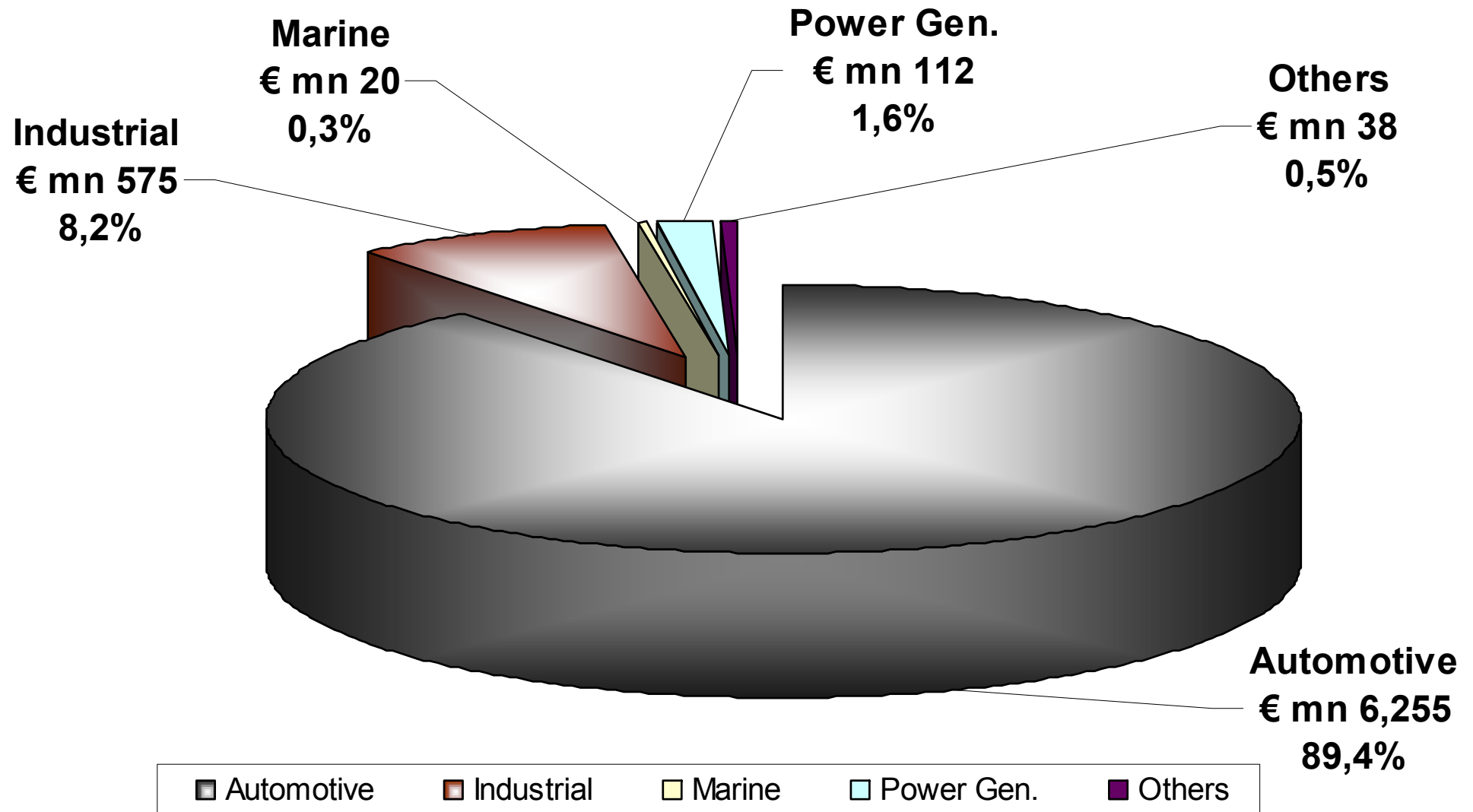
Captive Sales
5,491 € mn
78,4%

Transmissions
1,361 € mn
19 %



R&D & Others
413 € mn
6 %

Engines
5,226 € mn
75 %

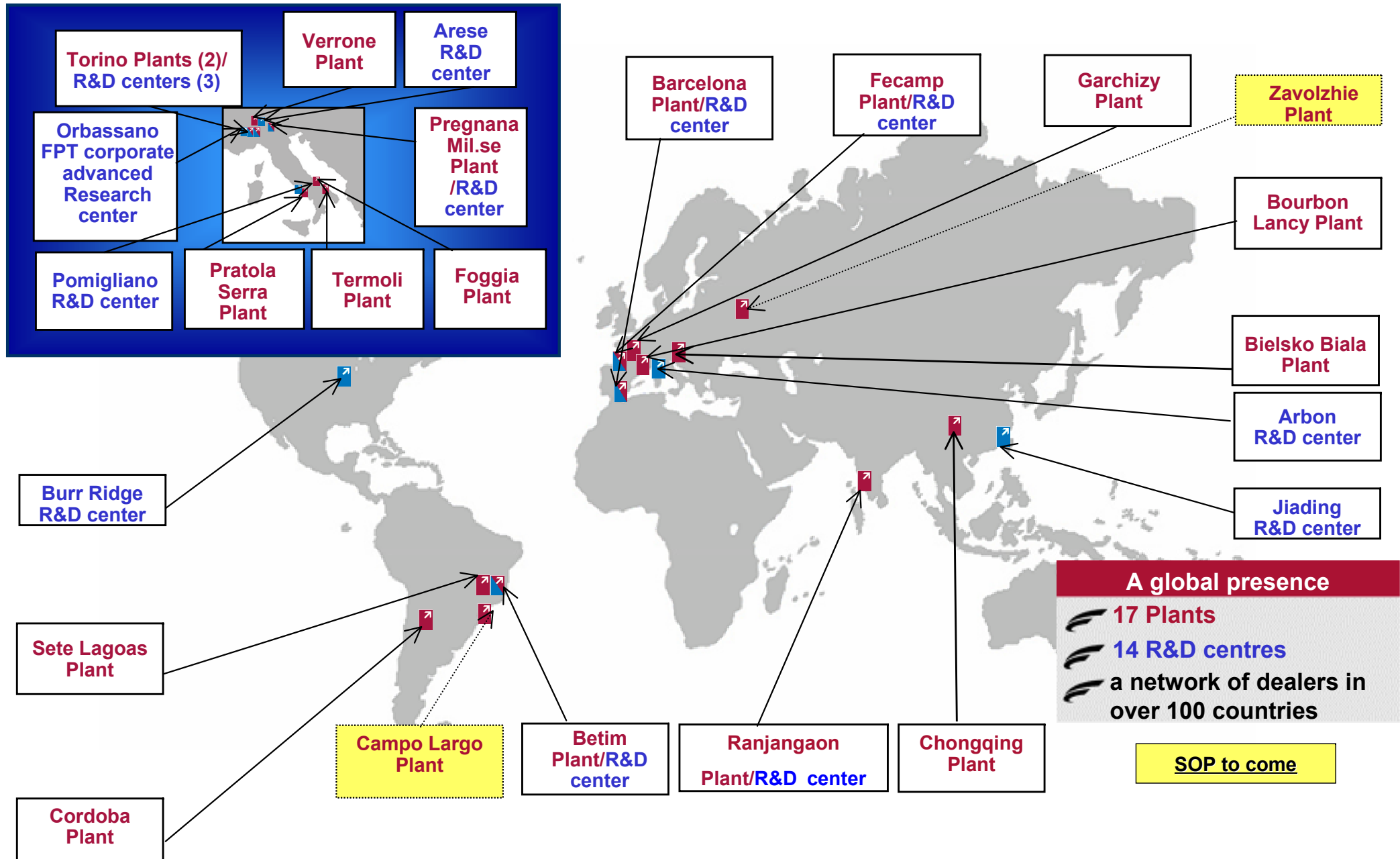


FPT alliances and cooperations



	<p>Joint Venture Agreement</p>	<ul style="list-style-type: none"> Small diesel, gasoline engines and transmissions (SDE 1,3 I., Fire 1,2l., Fire 1,4l.) 	<p>India (Ranjangaon)</p>
	<p>License</p>	<ul style="list-style-type: none"> 1,3 I. SDE engines 2,0 I. JTD Multijet engines 	
	<p>Joint Venture Agreement</p>	<ul style="list-style-type: none"> Medium & Heavy diesel engines (FAM. N, FAM. C) 	<p>China (Chongqing)</p>
	<p>Production</p>	<ul style="list-style-type: none"> Transmissions 	<p>Argentina (Cordoba)</p>
	<p>Strategic Partnership</p>	<ul style="list-style-type: none"> Light diesel engines (FAM. F) 	<p>Italy (Turin)</p>
	<p>License</p>	<ul style="list-style-type: none"> Transmissions (C510, C514) 	
	<p>Framework Agreement</p>	<ul style="list-style-type: none"> Gasoline engines (Fire 1.4l 120hp and 150hp T-Jet) 	<p>China (Changsha)</p>
	<p>Strategic Cooperation Agreement</p>	<ul style="list-style-type: none"> Light diesel engines (F1C) 	<p>Italy (Foggia)</p>
	<p>Technological transfer</p>	<ul style="list-style-type: none"> Gasoline engines and transmissions (Multiair technology) 	

FPT plants and R&D in the world



165 main distributors and more than 1300 service points operate under the FPT trademark all over the world.

Dealers

Afghanistan	Ghana	Republic of Korea
Albania	Greece	Romania
Algeria	Honduras	Russia
Angola	India	Saudi Arabia
Antigua & Barbuda	Iran	Senegal
Argentina	Ireland	Singapore
Australia	Italy	Slovakia
Austria	Jordan	South Africa
Belarus	Kuwait	Spain
Belgium	Latvia	Swaziland
Botswana	Lebanon	Sweden
Brazil	Malaysia	Switzerland
Brunei Darussalam	Malta	Syria
Bulgaria	Martinique	Taiwan
Canada	Moldova	Tanzania
Chile	Morocco	Thailand
China	Myanmar	The Bahamas
Colombia	Namibia	Trinidad & Tobago
Congo (Dem Rep.)	Netherlands	Tunisia
Cyprus	New Caledonia	Turkey
Czech Republic	New Zealand	United Arab Emirates
Denmark	Norway	United Kingdom
Djibouti	Pakistan	USA
Egypt	Philippines	Venezuela
Ethiopia	Poland	Vietnam
Finland	Polynesie Francaise	Yemen
France	Portugal	
Germany	Puerto Rico	



Powertrain Research & Technology activities:



✦ Clean and Efficient Powertrains:

Development and application of **innovative technologies** with the scope of reducing the engine **emissions** and improving the **fuel consumption** of the vehicle.

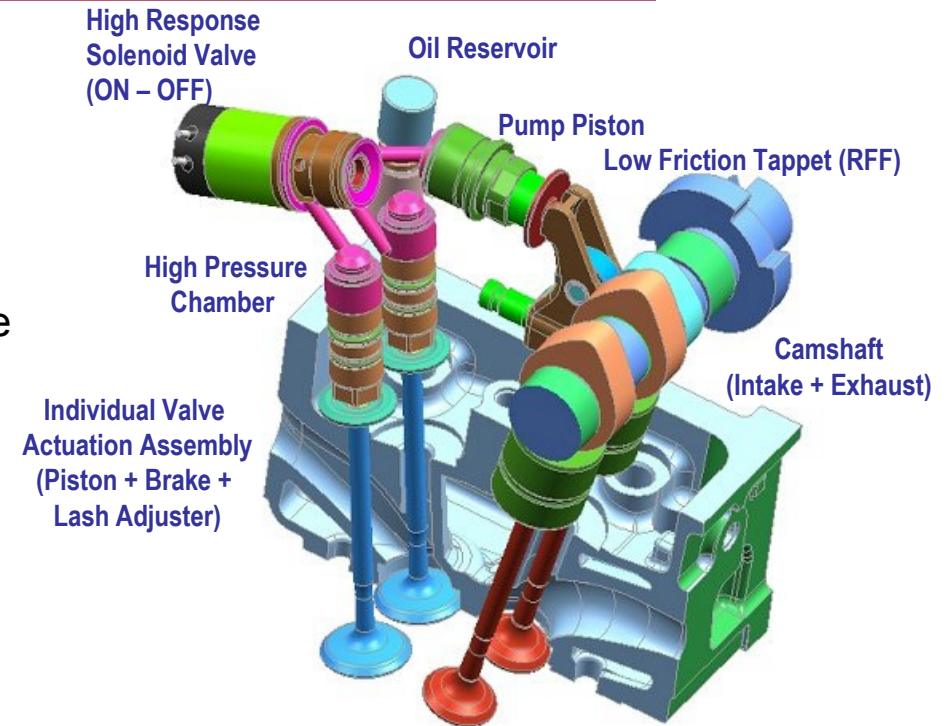
✦ Technologies:

As far as **conventional powertrains** are concerned, most of the new technologies are based on the integration of electro-hydraulic actuation systems with advanced electronic control systems, aiming to manage the air and fuel systems, the combustion process, the exhaust gas after-treatment and the power transmission systems.

Regarding the **new emerging powertrain technologies**, the efforts are concentrated on the development of cost-effective hybrid propulsion systems, tailored for urban transportation.

MULTIAIR

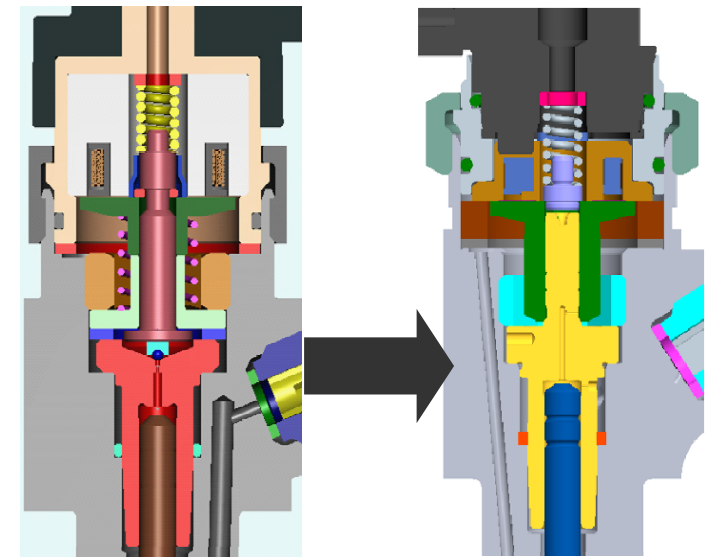
The Multiair technology is an innovative system for intake valves electronic control which, by regulating the intake air at every combustion cycle, allows both a substantial consumption reduction and a remarkable improvement in the engine readiness and fun-to-drive.



MULTIJET 2

An innovative solenoid injector, with hydraulically balanced servovalve, that allows to eliminate the dwell time between consecutive injections up to the injection rate shaping management.

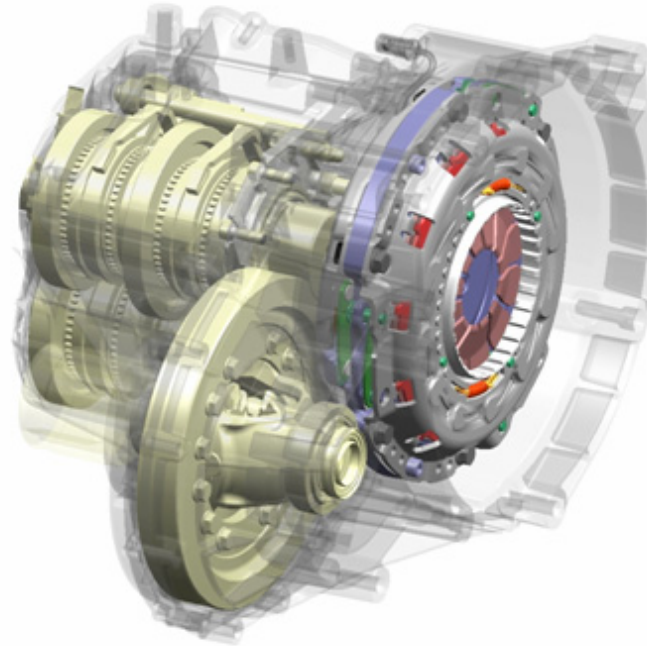
Advantages are represented by a remarkable reduction of nox and soot emissions together with combustion noise improvement.



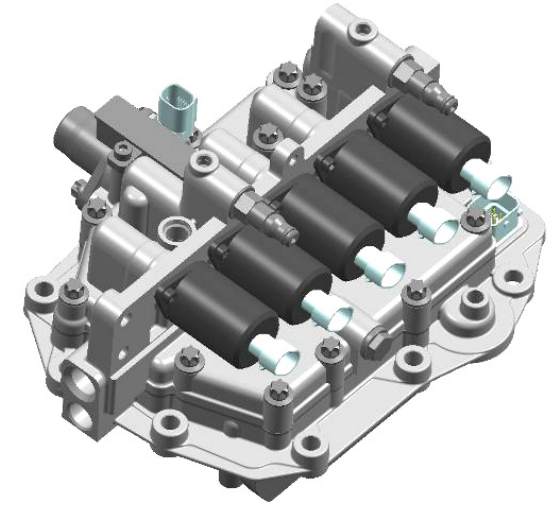
Technological excellence: transmissions



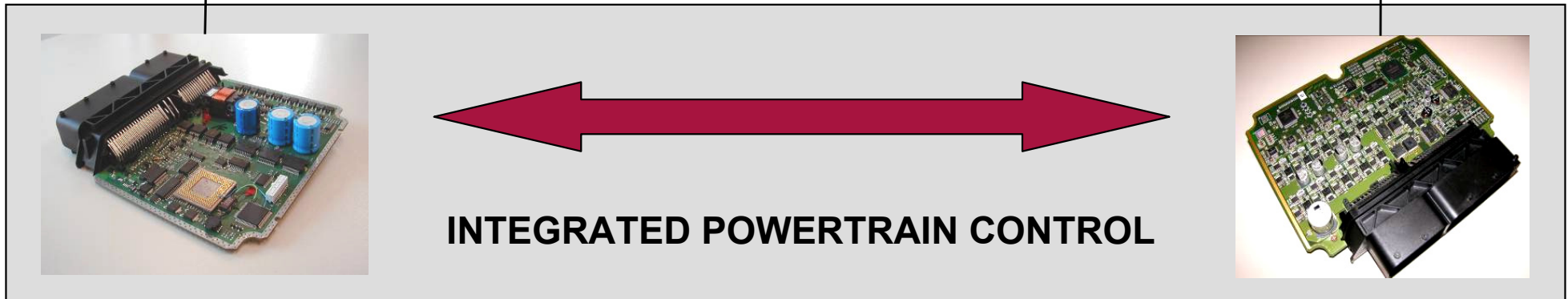
Engine



Dual Dry Clutch Transmission

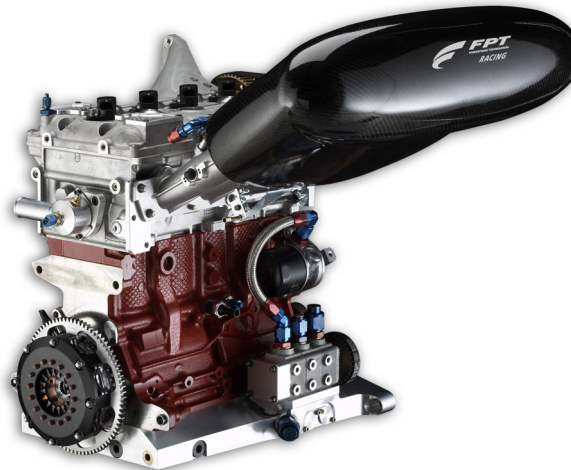


Transmission Actuator



In Fiat Powertrain Technologies, dynamism and technology are represented by **FPT RACING**, a team of about 45 engineers working on design, test, development and production of

- ✦ Engines for racing cars
- ✦ Performance kits to upgrade gasoline and diesel powertrains
- ✦ Special engines for limited series



RACING SUCCESSES

FPT will be exclusive supplier of engines (420 F3) for the Italian Formula 3 Championship in the 2008-2010 seasons



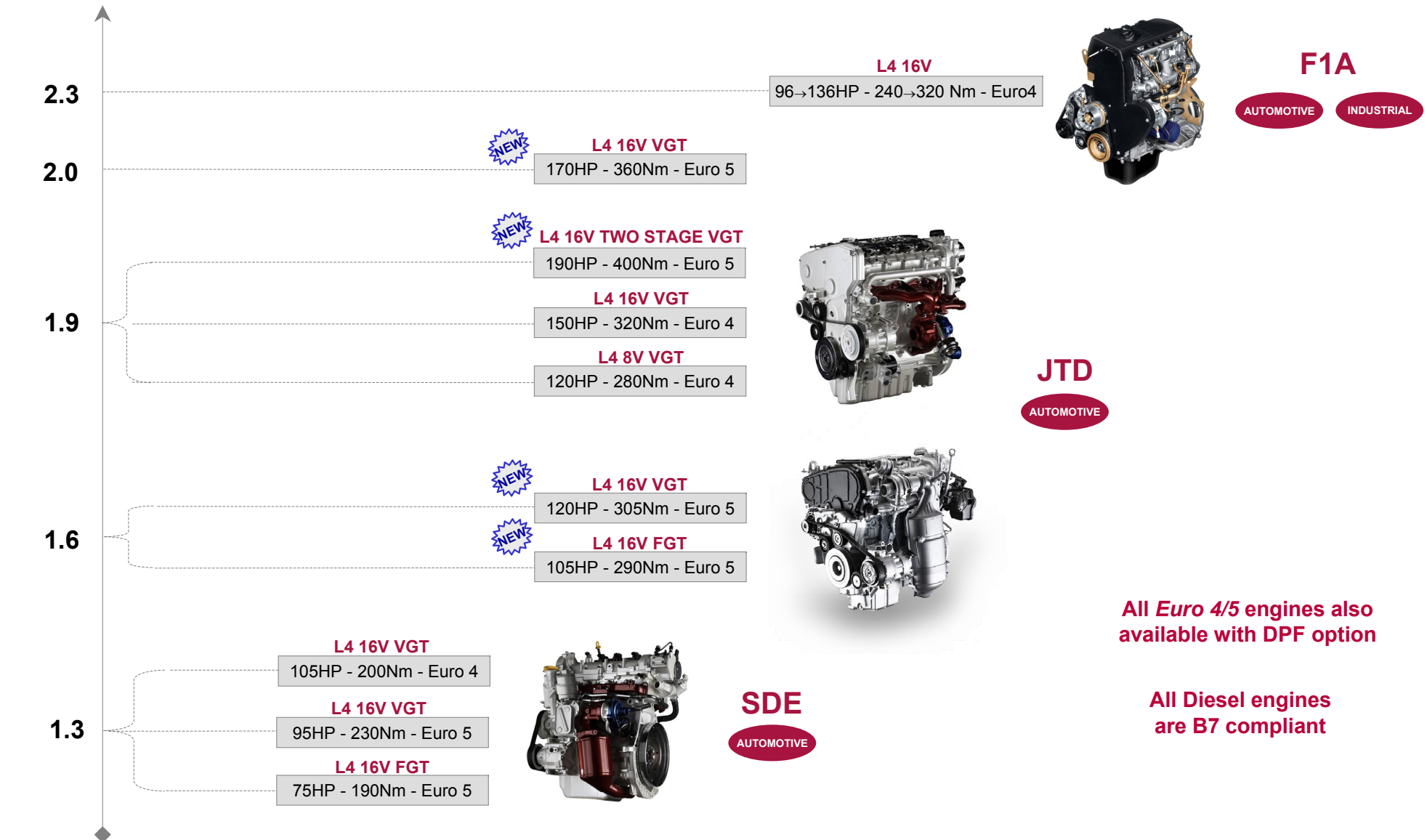
With the N60 480 engine, Blue FPT won the Round Britain Powerboat Race 2008: the longest off-shore race in the world!



Red FPT won the 2008 edition of the Torquay-Cowes-Torquay boat race with the N67 600 Evolution engine

FPT Product Range – Light Diesel engines

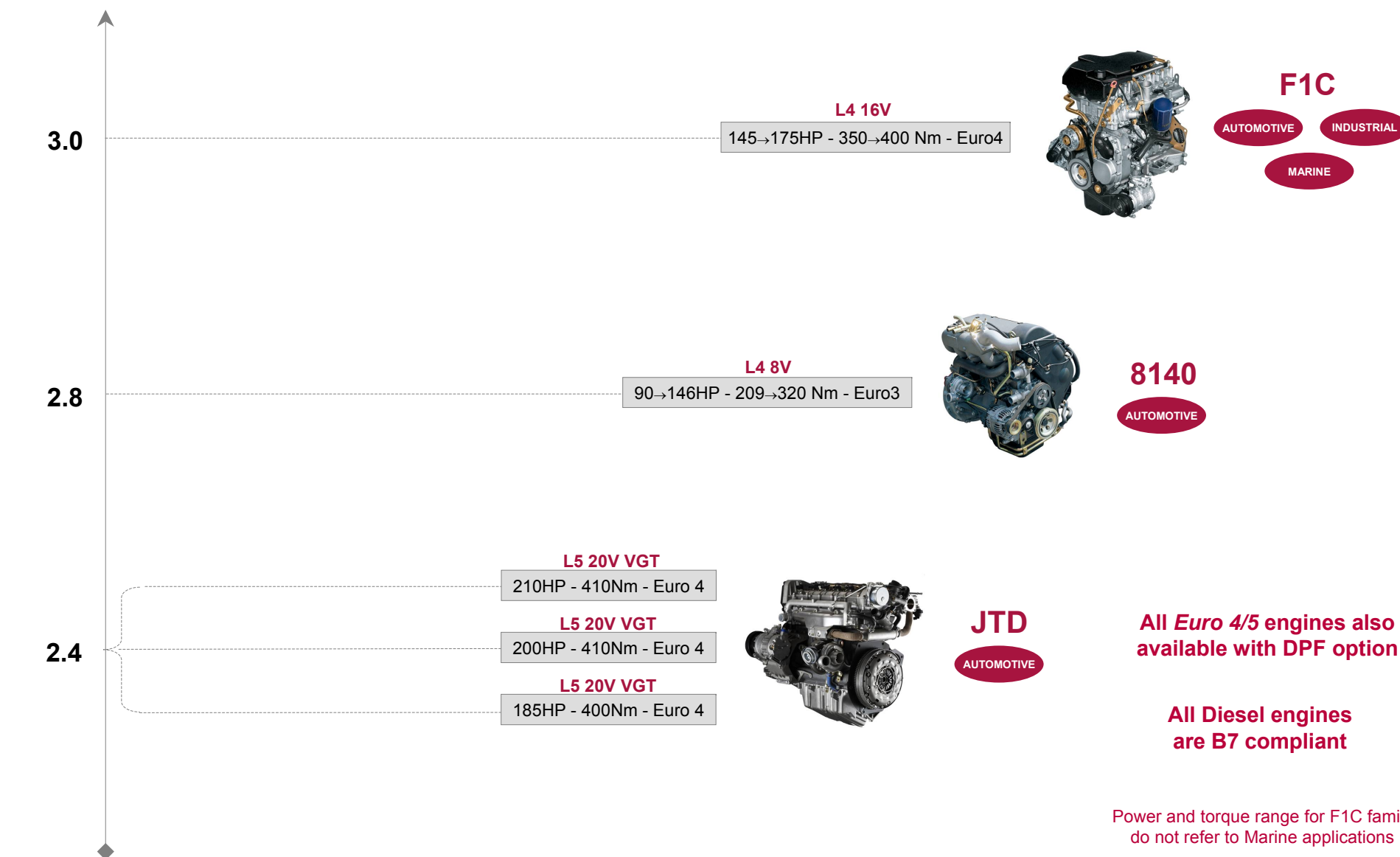
Displacement [litres]



FPT Product Range – Light Diesel engines



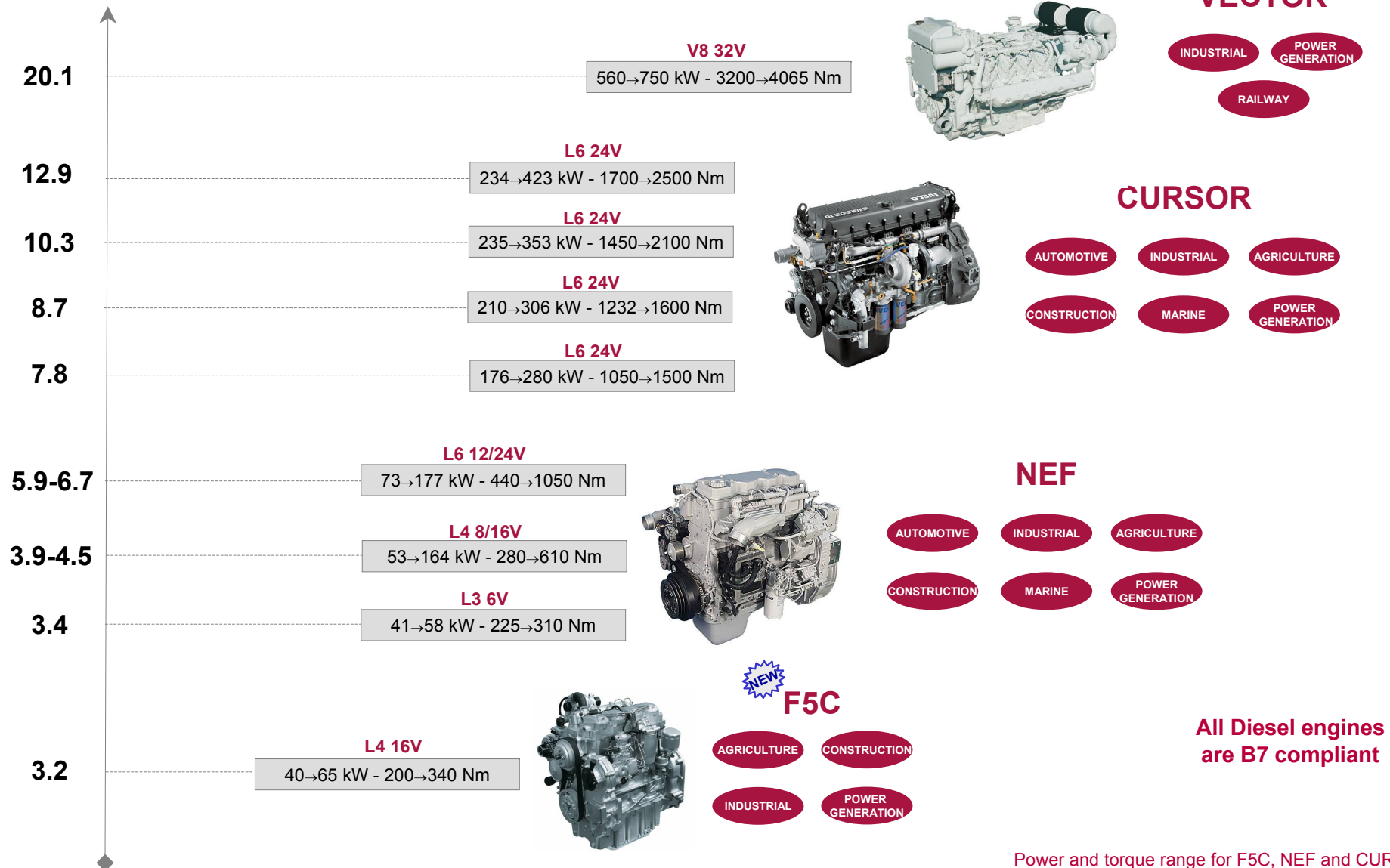
Displacement [litres]



FPT Product Range – Medium&Heavy Diesel engines



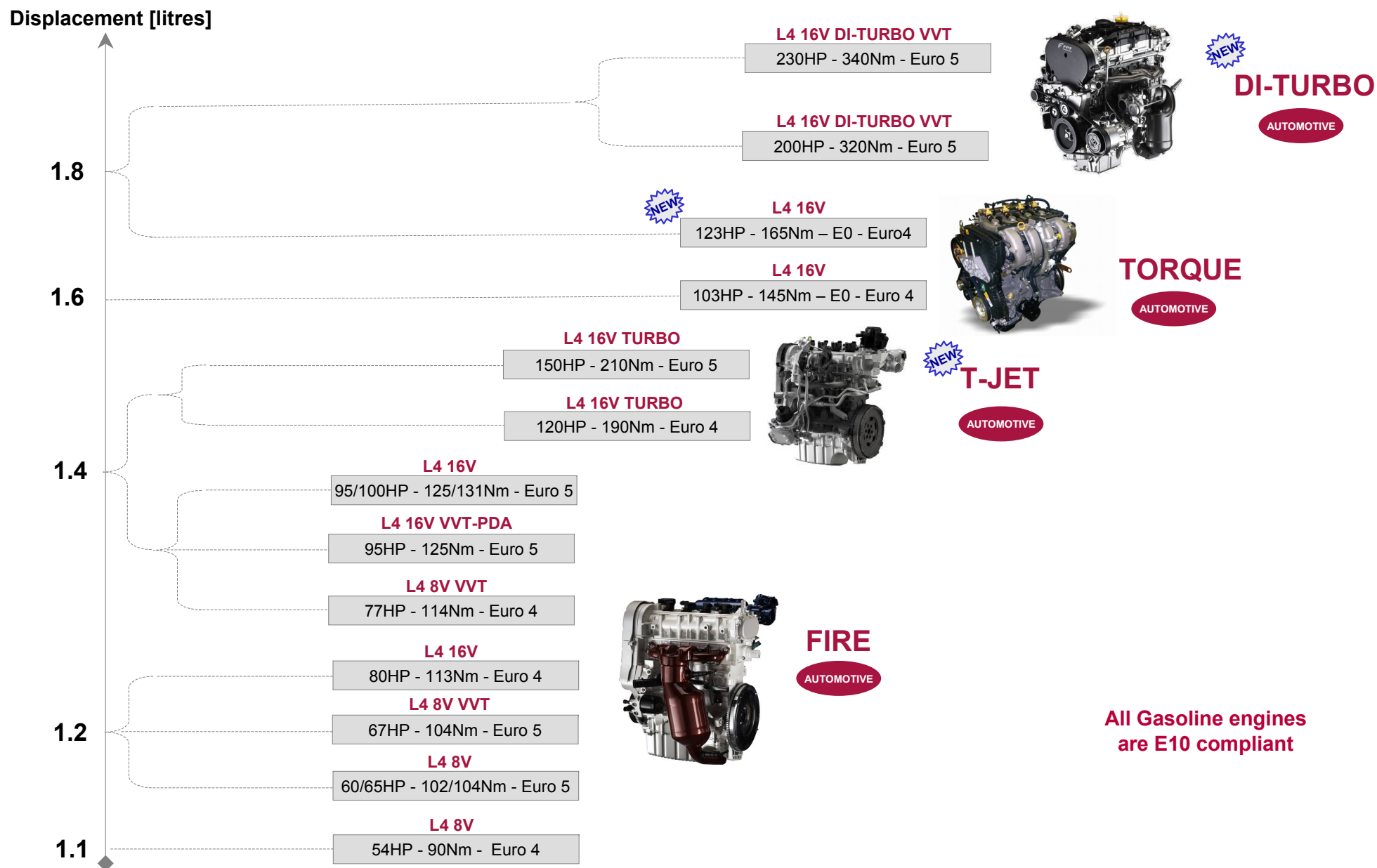
Displacement [litres]



All Diesel engines are B7 compliant

Power and torque range for F5C, NEF and CURSOR families does not refer to Marine and Power Generation applications

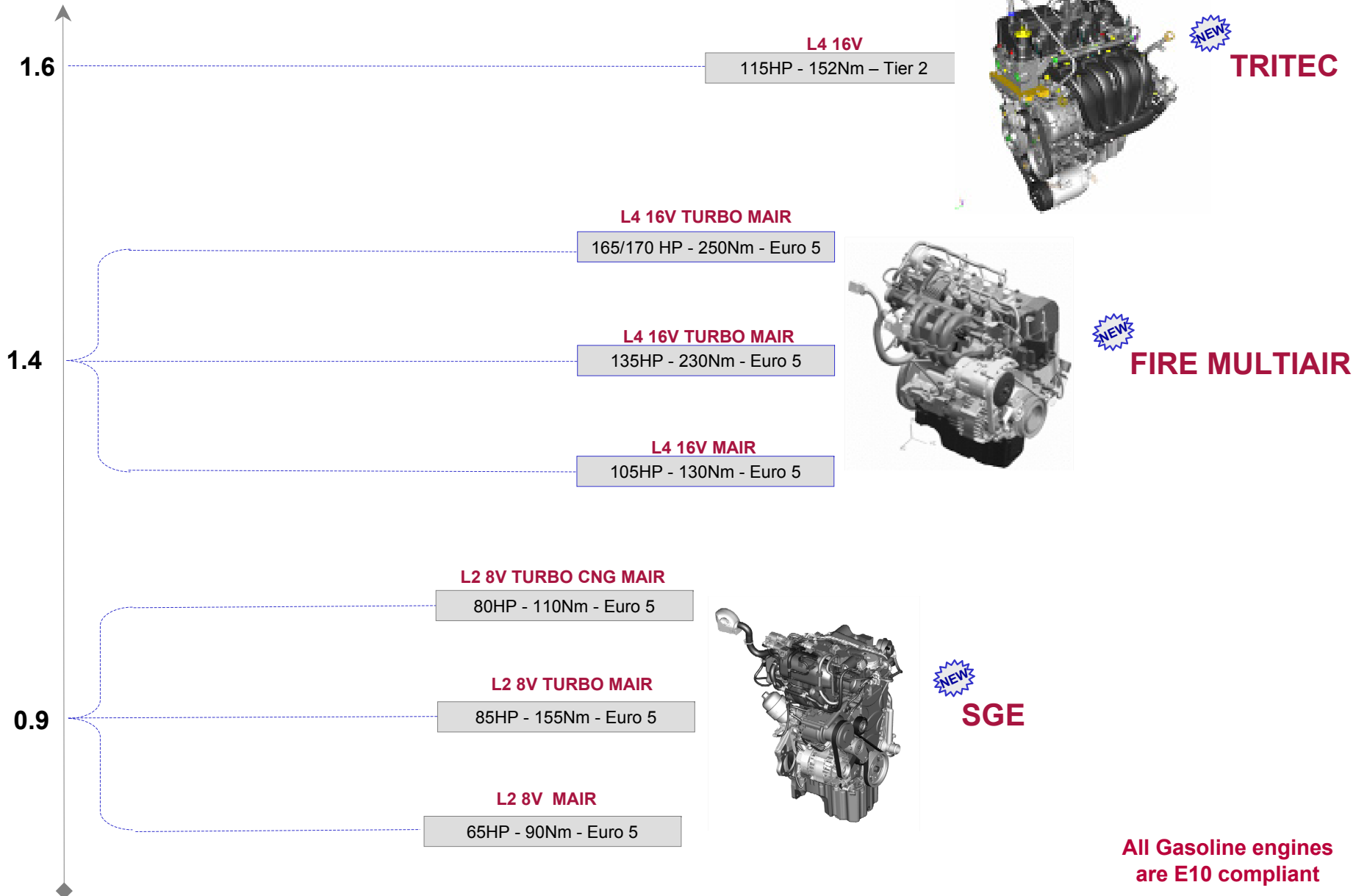
FPT Product Range – Gasoline engines



NEW FPT Products– Gasoline engines



Displacement [litres]



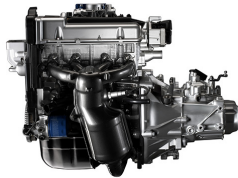
FPT Product Range – Alternative fuel engines

Displacement [litres]



**TORQUE
GASOLINE-CNG**

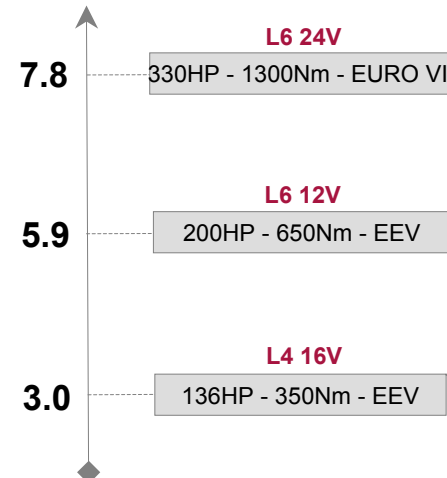
AUTOMOTIVE



**FIRE
GASOLINE-CNG**

AUTOMOTIVE

Displacement [litres]



NEW

CURSOR CNG

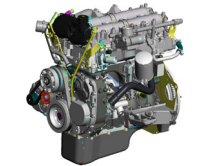
AUTOMOTIVE



NEF CNG

AUTOMOTIVE

INDUSTRIAL

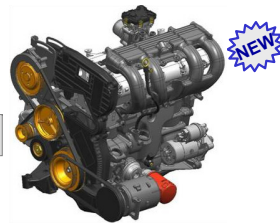
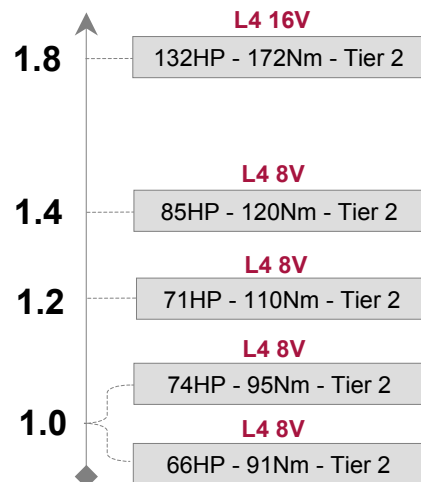


NEW

F1C CNG

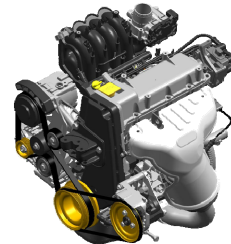
AUTOMOTIVE

Displacement [litres]



**TORQUE
FLEX**

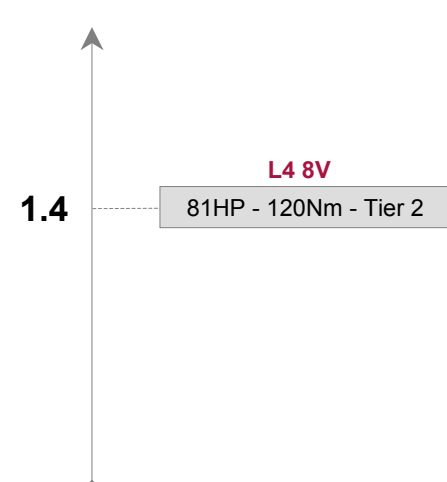
AUTOMOTIVE



**FIRE
FLEX**

AUTOMOTIVE

Displacement [litres]



**FIRE
TETRAFUEL**

AUTOMOTIVE

* EURO VI Ready

FPT Product Range – Racing engines



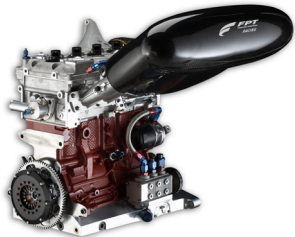
SE109m engine (1997 c.c.) on Abarth Grande Punto S2000



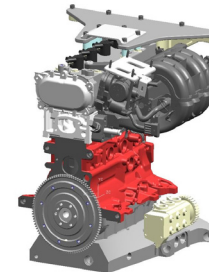
0416 S – 2002 (1597 c.c.) engine on Fiat Punto S1600



420F3 (1993 c.c.) engine on Formula 3



140FJ (1368 c.c.) engine on Dallara



147 CUP (1969 c.c.) engine on Alfa Romeo 147 CUP



R3D (1919 c.c.) engine on Abarth Grande Punto jtd R3D



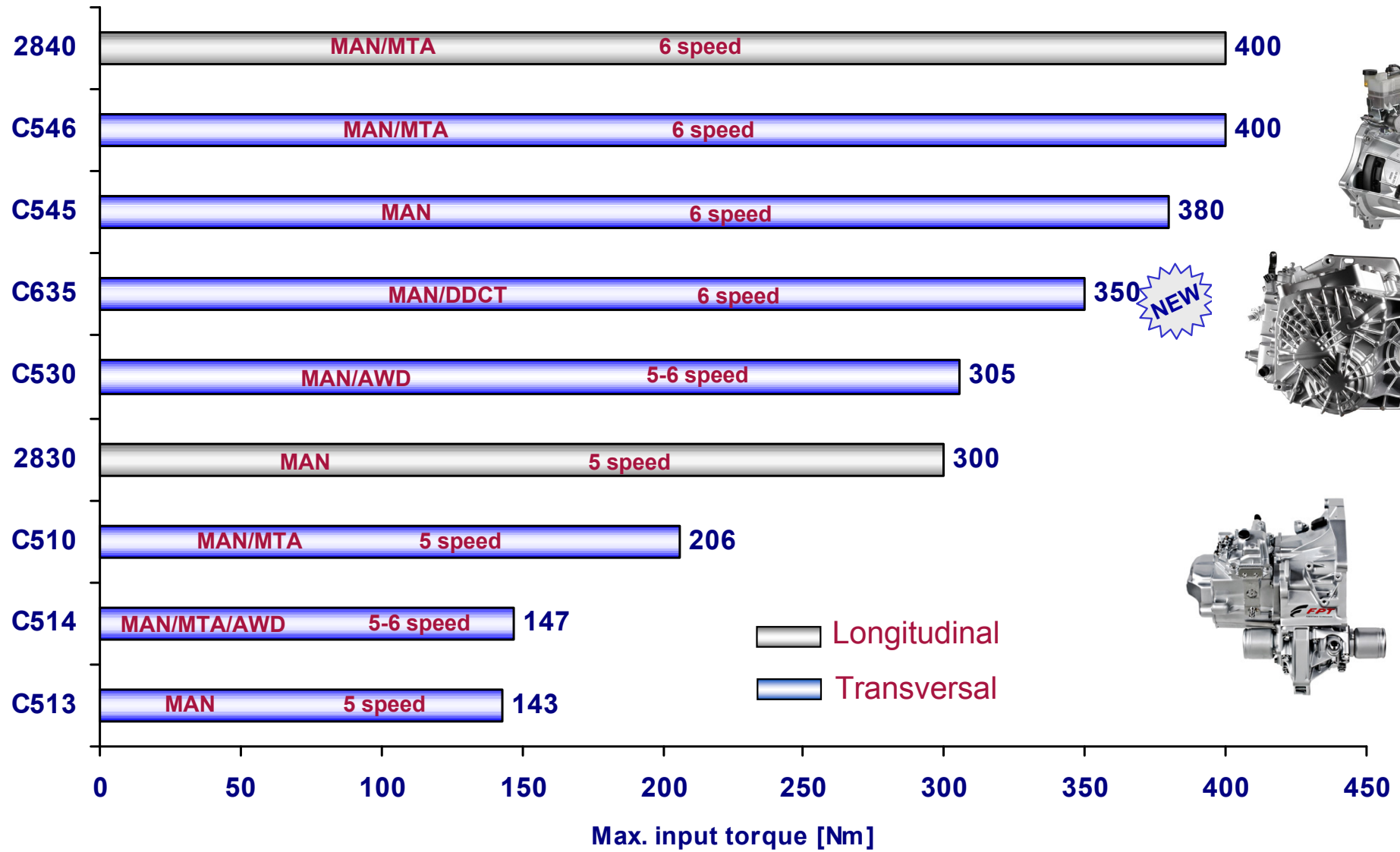
1604 – T (1597 c.c.) engine on Fiat Palio S1600



0204 – ST – 02 (c.c. 1998) engine on Alfa Romeo 156 WTCC



FPT Product Range – Transmissions



ENGINE FAMILIES

APPLICATION

Light Diesel:
SDE, JTD



Cars and LCV (Fiat, Alfa Romeo, Lancia, Opel, Suzuki, Saab, Tata)

Light Diesel:
F1A, F1C, 8140



LCV and SUV (Iveco, Fiat, PSA, Mitsubishi Fuso, Santana)

Medium&Heavy Diesel:
NEF, CURSOR



Trucks and Buses (Iveco, Tata-Daewoo, Irisbus Iveco, Sor, BPTC – Beijing Public Transportation Corporation)

Gasoline:
**T-JET, FIRE,
NEW ARGENTINA, DI-TURBO**



Cars (Fiat, Alfa Romeo, Lancia, Tata)

Flex, Tetrafuel, CNG:
**FIRE, NEW ARGENTINA,
F1C, NEF, CURSOR**



Cars and LCV (Fiat, Iveco), **Trucks** (Iveco) and **Buses** (BPTC)

FPT products for non-automotive applications



ENGINE FAMILIES MEDIUM&HEAVY DIESEL

APPLICATION

**F1A, F1C, F5C, NEF,
CURSOR, VECTOR**



**Mobile and Stationery industrial,
Material Handling**

F5C, NEF, CURSOR



Agricultural

F5C, NEF, CURSOR



Construction Equipment

**F1C, NEF,
CURSOR, VECTOR**



Marine

**F5C, NEF,
CURSOR, VECTOR**



Power Generation

VECTOR



Railway

Fiat Powertrain Technologies

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