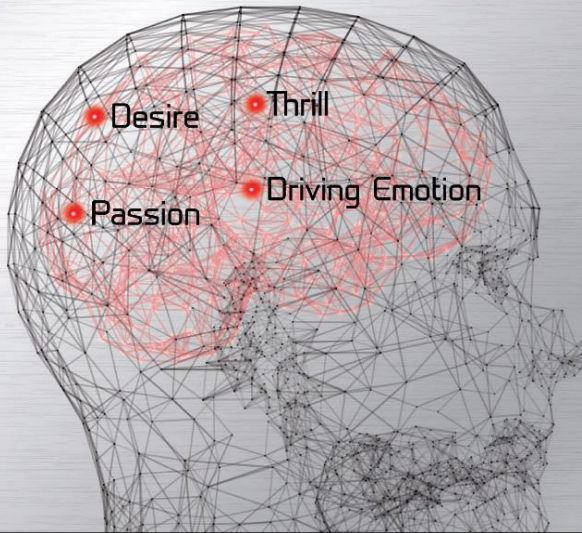




488 GTB

INTERNATIONAL MEDIA TEST DRIVE

THE ENGINE



488 GTB A NEW TURBOCHARGED ENGINE: **THE TARGET**

Support Stretching the performance,
keeping the identity of a Ferrari engine:



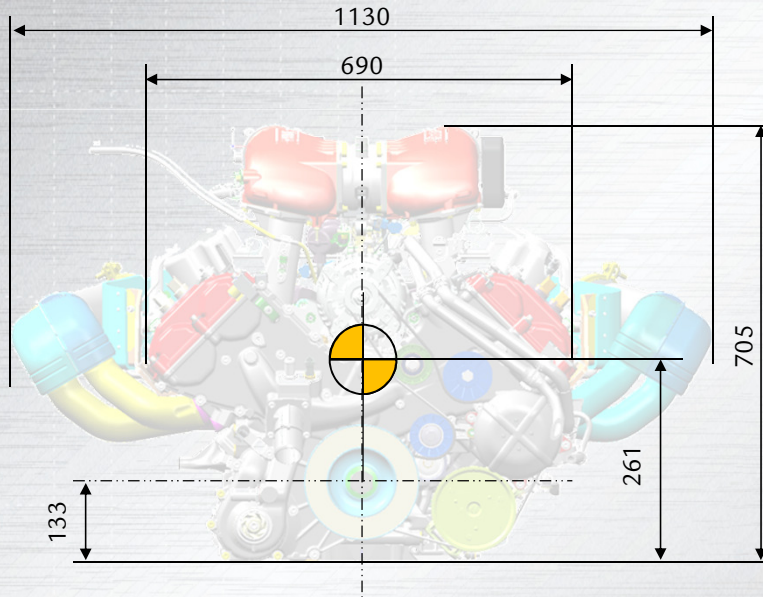
- Sharp, dynamic response
- Increasing acceleration
- Unique, typical sound
- High engine speed

488 GTB ENGINE SPECIFICATIONS

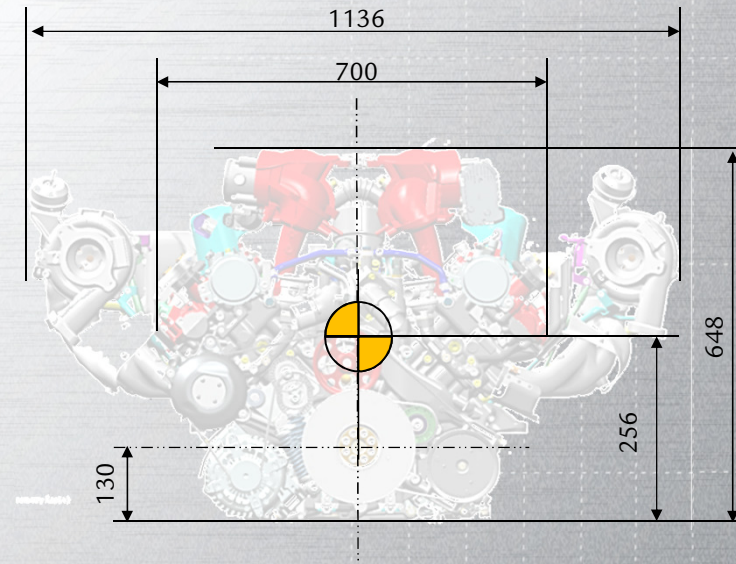
	Ferrari 458 Italia	Ferrari 488 GTB
Architecture	V8 90° - flat crankshaft	V8 90° - flat crankshaft
Displacement (cc)	4,497	3,902
Bore (mm) x Stroke (mm)	94 x 81	86.5 x 83
CR	12.5	9.4
Max Torque (Nm) @ RPM	540 @ 6,000	760 @ 3,000
Max Power (CV)	570	670
Max engine speed (RPM)	9,000	8,000
Specific Power (CV/L)	127	172
Maximum BMEP (bar)	15.1	24.5
Induction system	Naturally Aspirated	Turbocharged
Fuel Injection	Gasoline Direct – 200 bar	Gasoline Direct – 200 bar

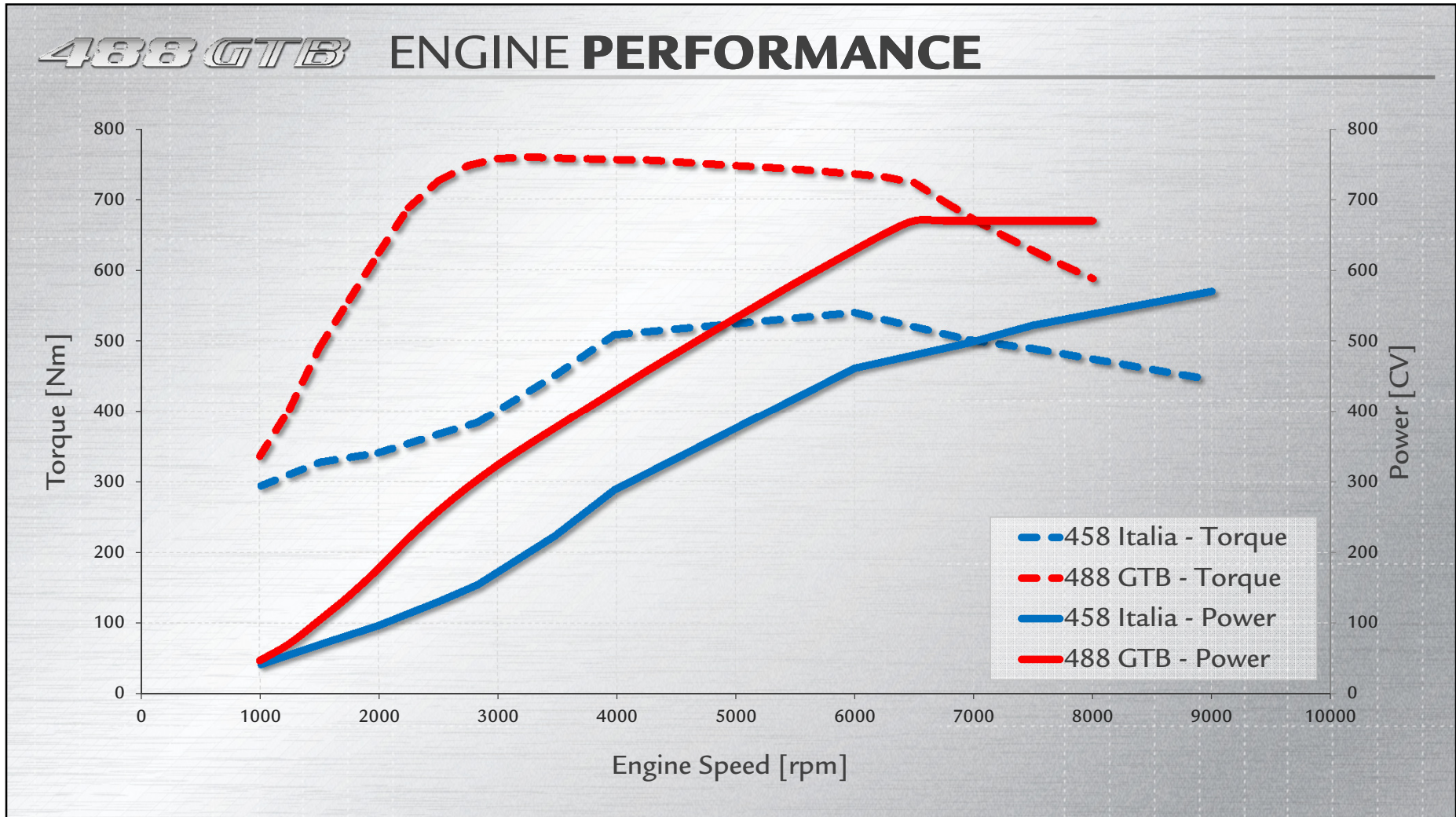
488 GTB A NEW ENGINE

458 Italia



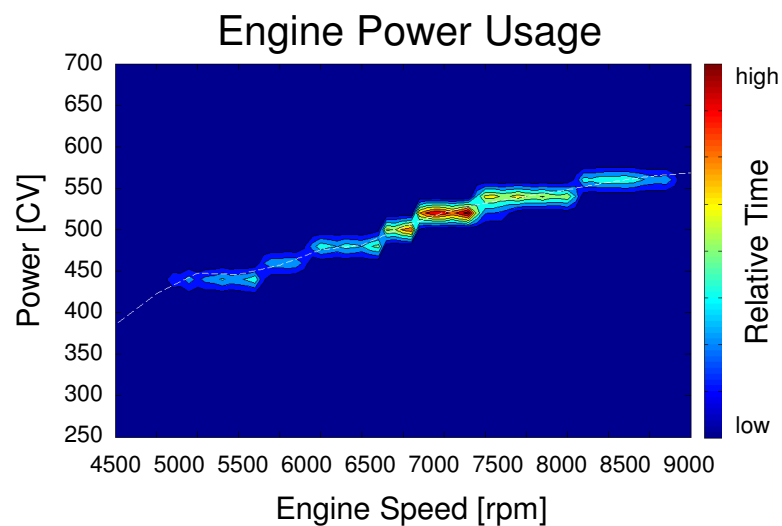
488 GTB





488 GTB AVERAGE POWER USED ON TRACK

458 Italia



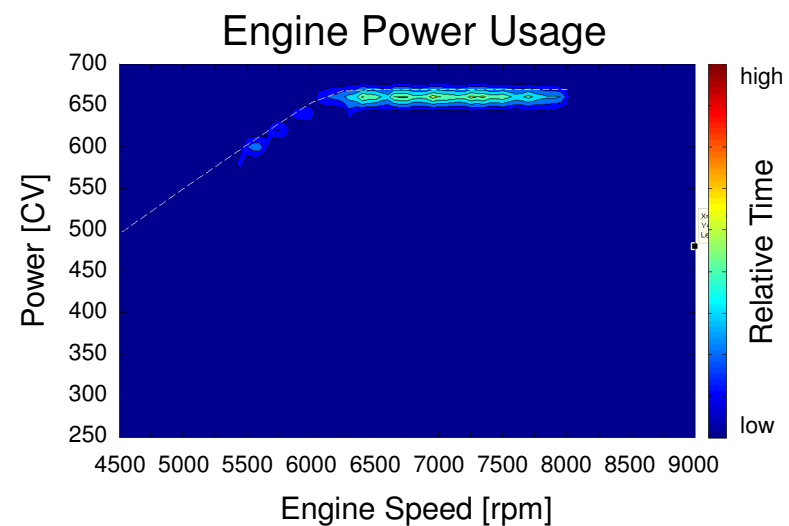
Max Power = 570 cv

Average Power = 520 cv

+ 100 cv

+ 150 cv

488 GTB



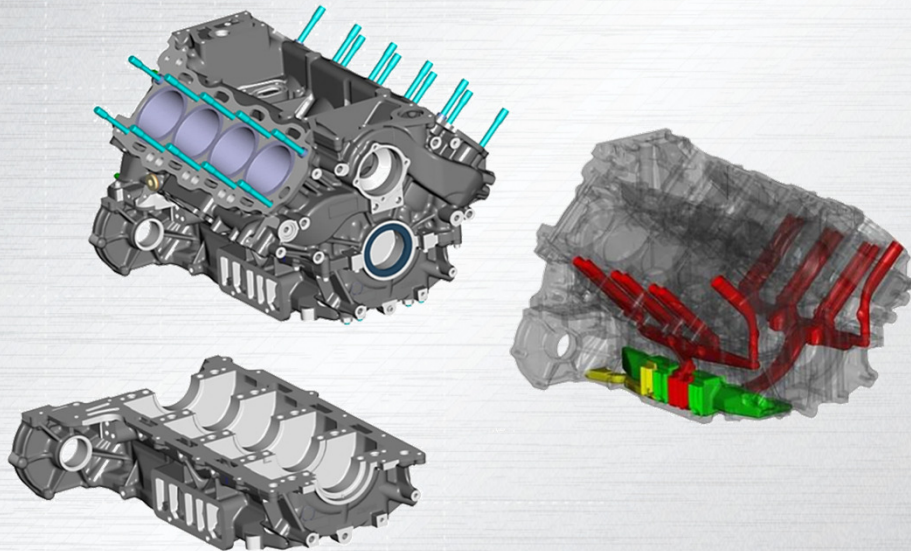
Max Power = 670 cv

Average Power = 670 cv

488 GTB EXTREME PERFORMANCE OF F154 ENGINE FAMILY

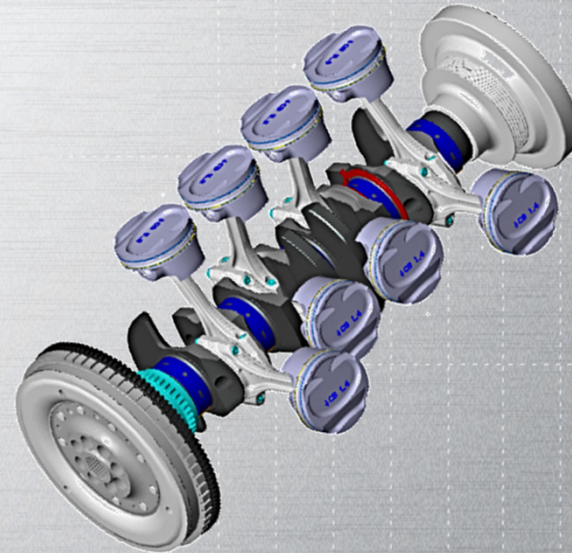
New **dry-sump** lubrication circuit

- Optimised lubrication in any extreme-race operating condition with one main variable geometry oil pump + 5 scavenge pumps



New **cranktrain**

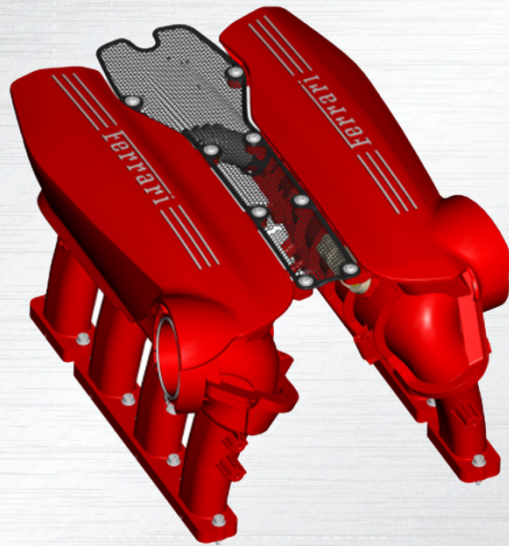
- New, lightweight crankshaft
- New con-rods and pistons



488 GTB EXTREME PERFORMANCE OF F154 ENGINE FAMILY

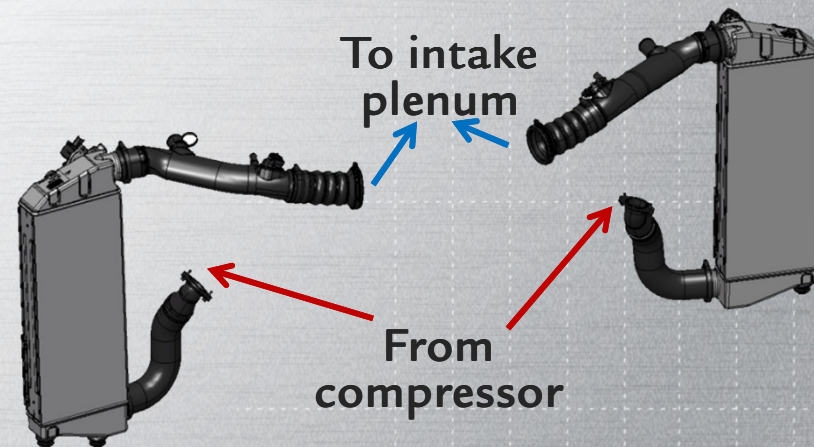
New intake plenum

- Different intake runners length for optimised filling capacity and higher engine performance



New cranktrain

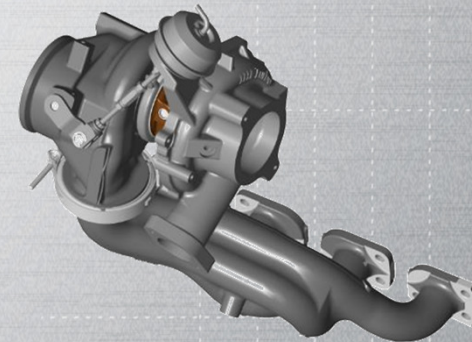
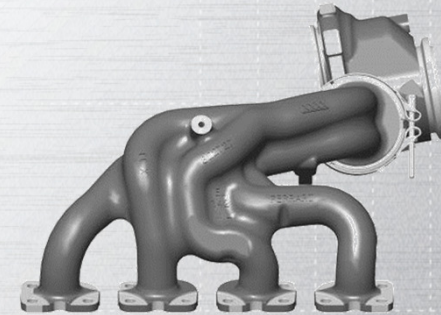
- Air cooler close to the compressor exit
- Minimised pressure losses
- Minimised volume
→ Faster engine response



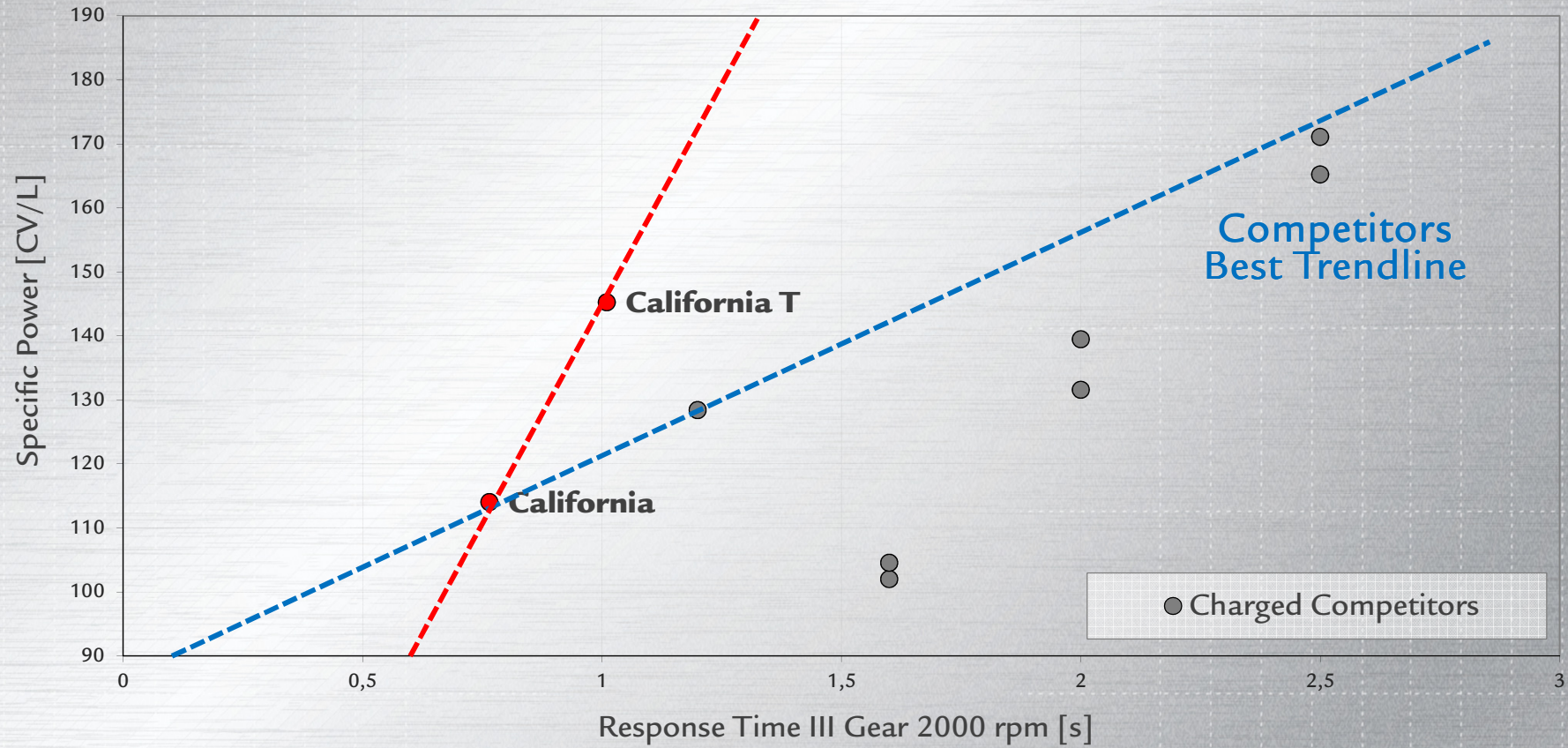
488 GTB EXTREME PERFORMANCE OF F154 ENGINE FAMILY

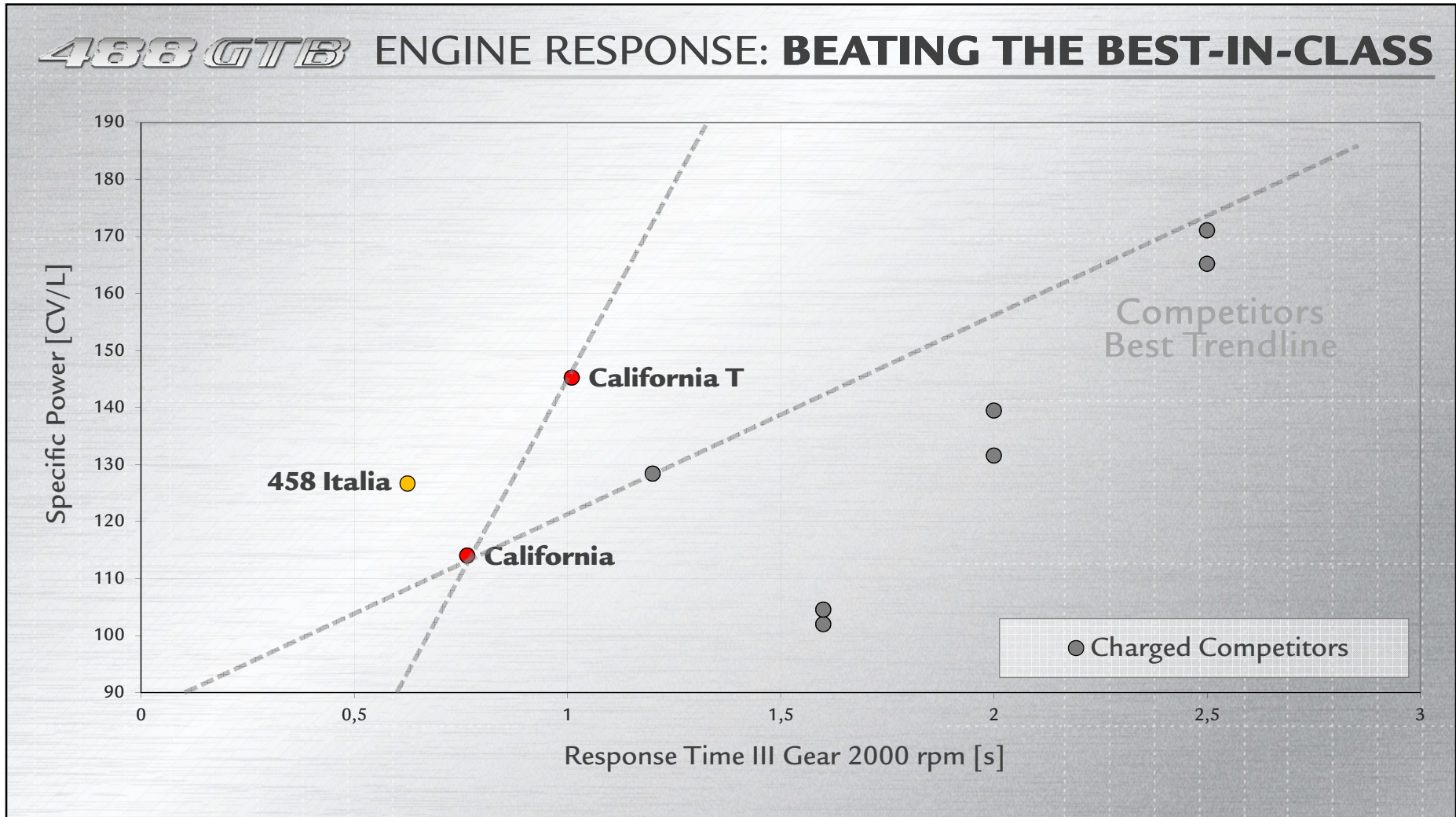
New exhaust manifolds and **turbochargers**

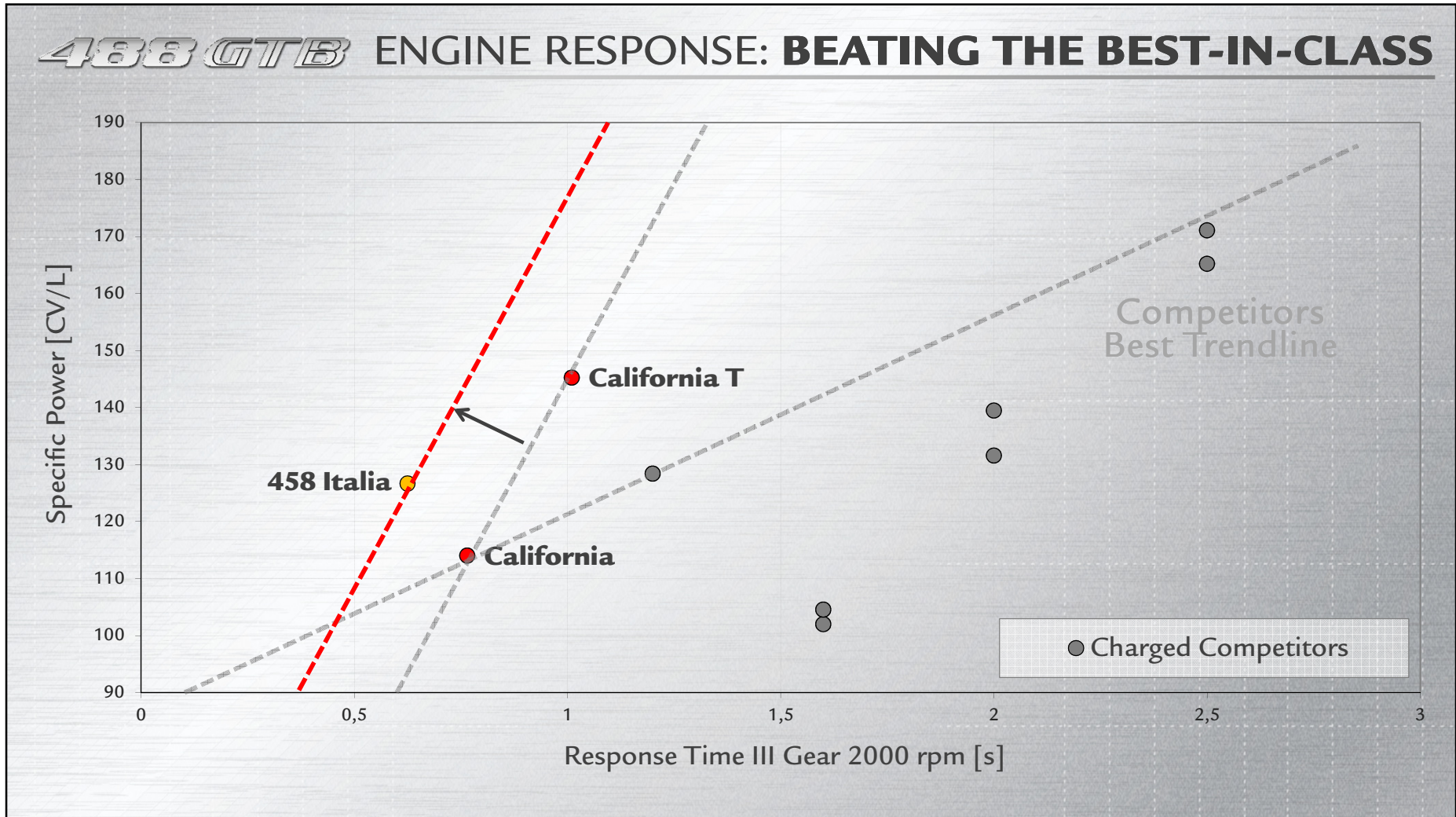
- Long and equal-length exhaust runners
- 4-into-2 exhaust manifold concept for twin-scroll turbine
- Minimised cylinder interference
- Reduced internal EGR to stretch the combustion efficiency



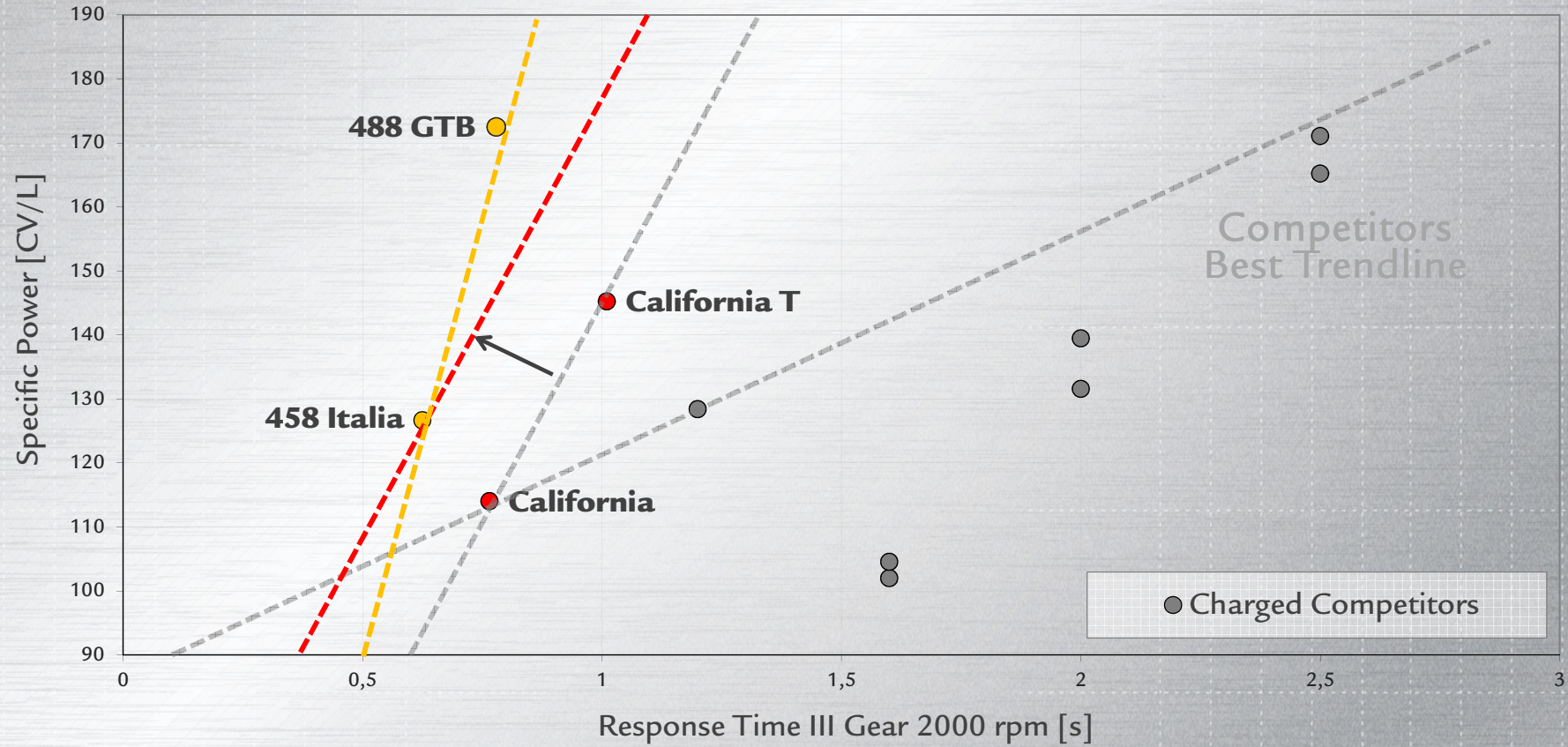
488 GTB ENGINE RESPONSE: BEATING THE BEST-IN-CLASS

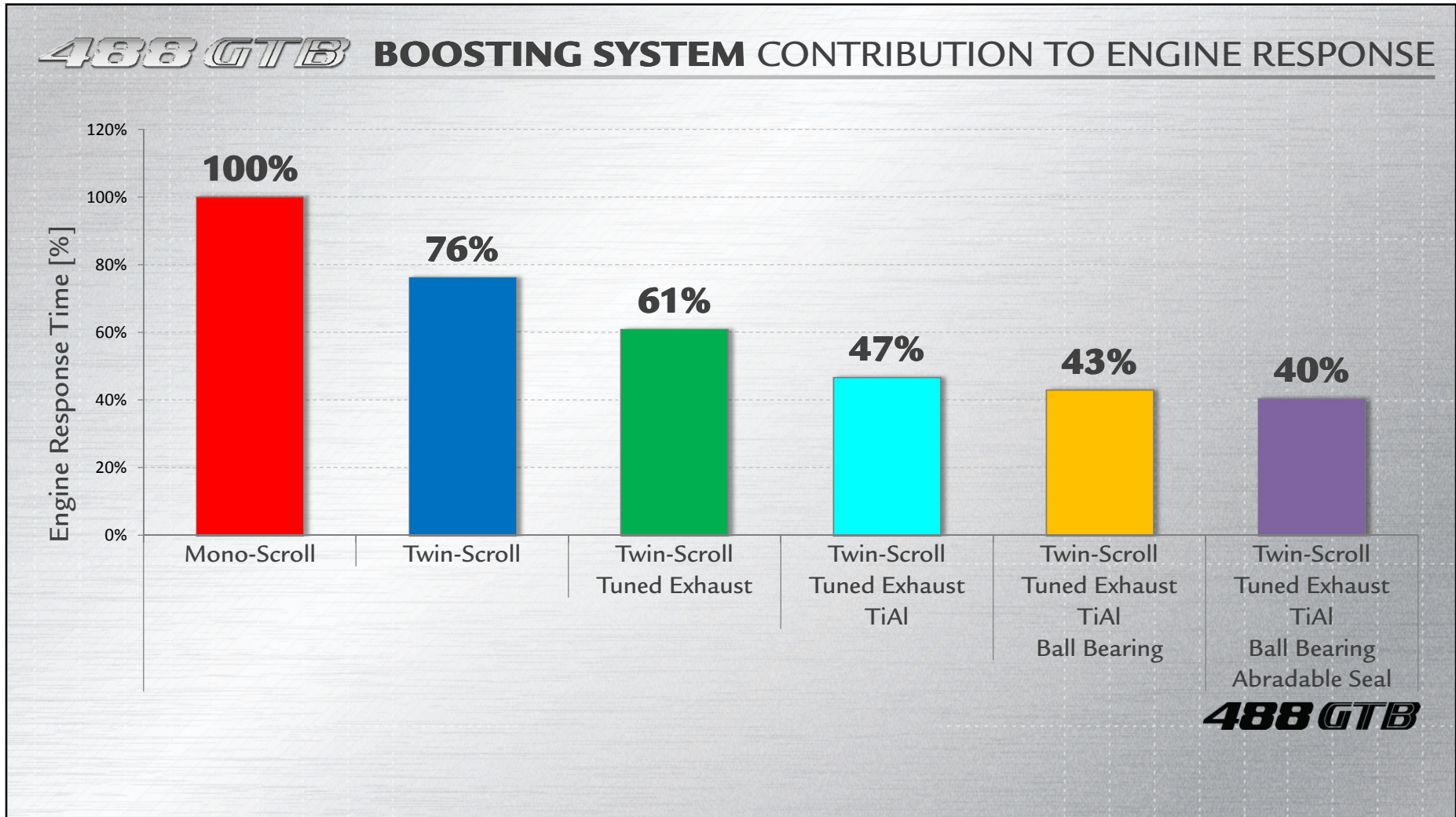






488 GTB ENGINE RESPONSE: BEATING THE BEST-IN-CLASS





488 GTB TURBOCHARGER TECHNOLOGICAL CONTENTS

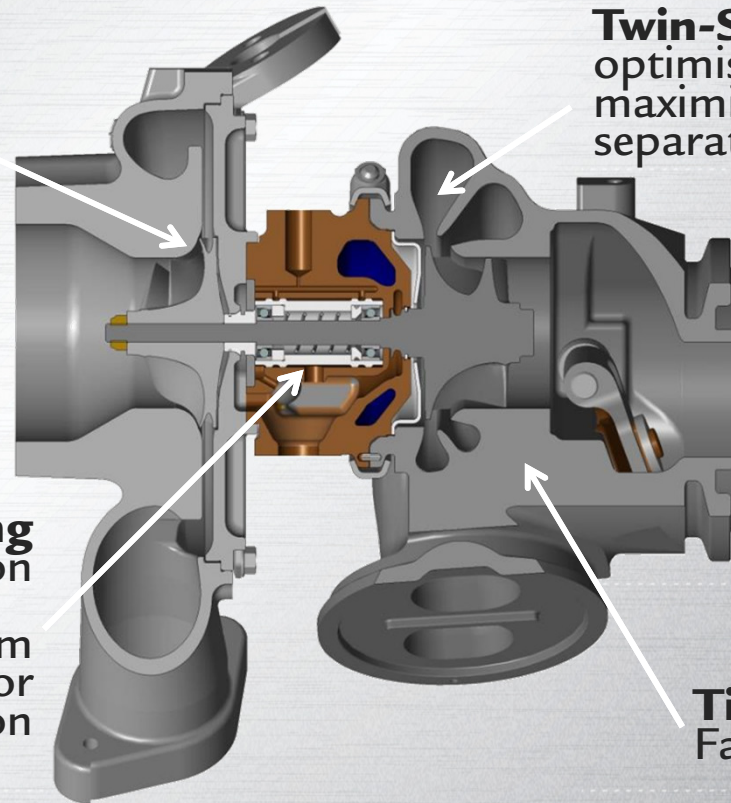
Abradable Seal
minimised gap
between wheel and
casing for higher
compressor efficiency

Twin-Scroll Turbine
optimised cylinder separation
maximised pressure pulses
separation

→ more effective
engine gas exchange
and more power
extraction in the
turbine

Ball Bearing
reduced turbocharger friction

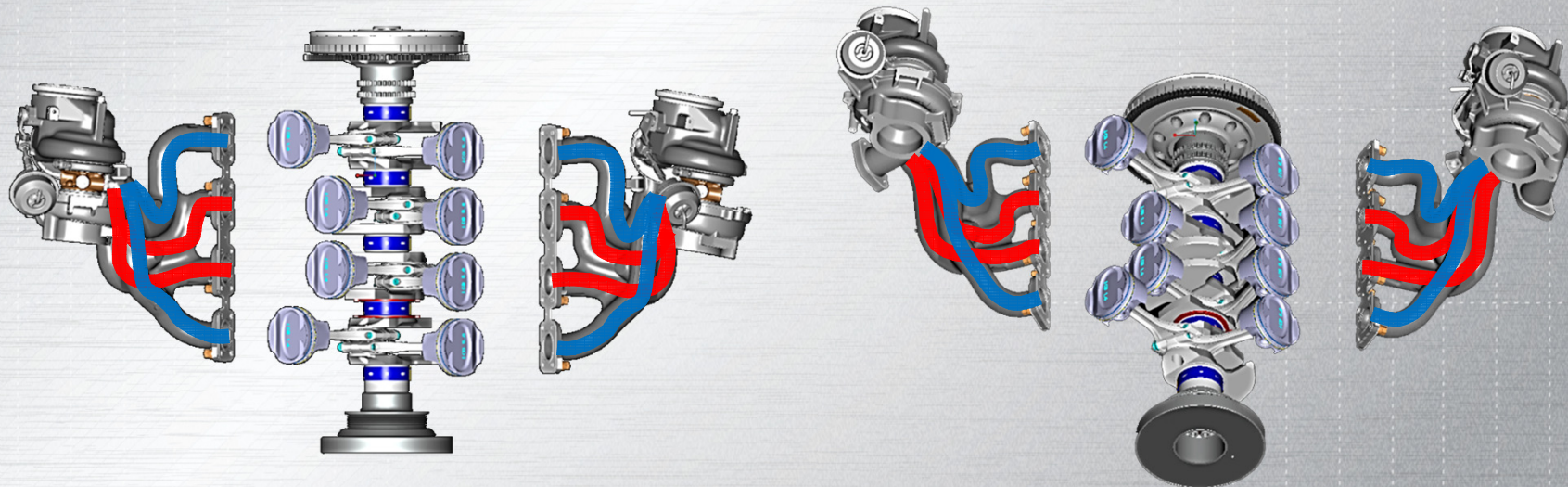
→ more energy transfer from
turbine to compressor for
increased turbo acceleration



TiAl Turbine Wheel
Faster turbo speed-up

488 GTB TWIN-SCROLL DESIGN: **EXHAUST MANIFOLD ARRANGEMENT**

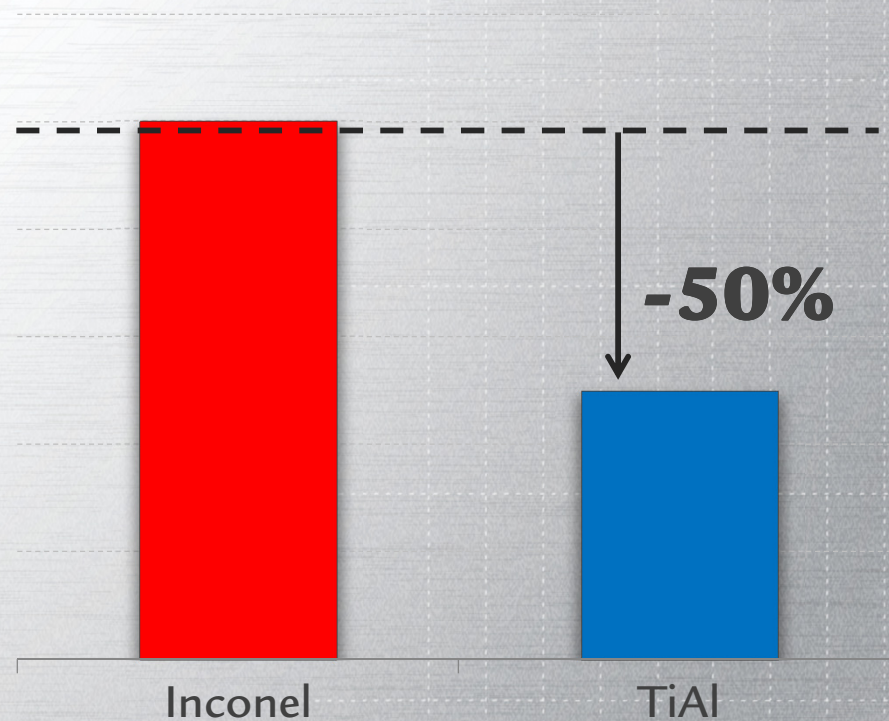
Flat-plane crankshaft and equal-length exhaust runners allow each twin-scroll turbocharger to be fed with equally-spaced pressure pulses for maximum power extraction



488 GTB Ti-Al TURBINE WHEEL

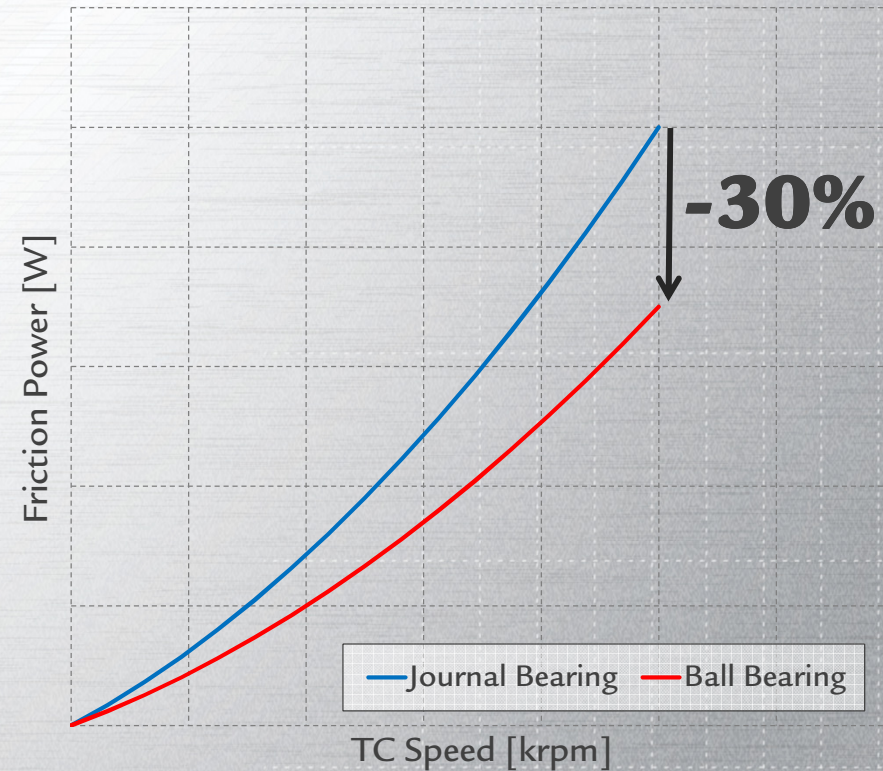
- Special, low-density Titanium-Aluminide alloy
 - Full, high-temperature resistance
 - -50% inertia compared to traditional Inconel
- Increased turbocharger acceleration for sharp engine response

TURBINE INERTIA



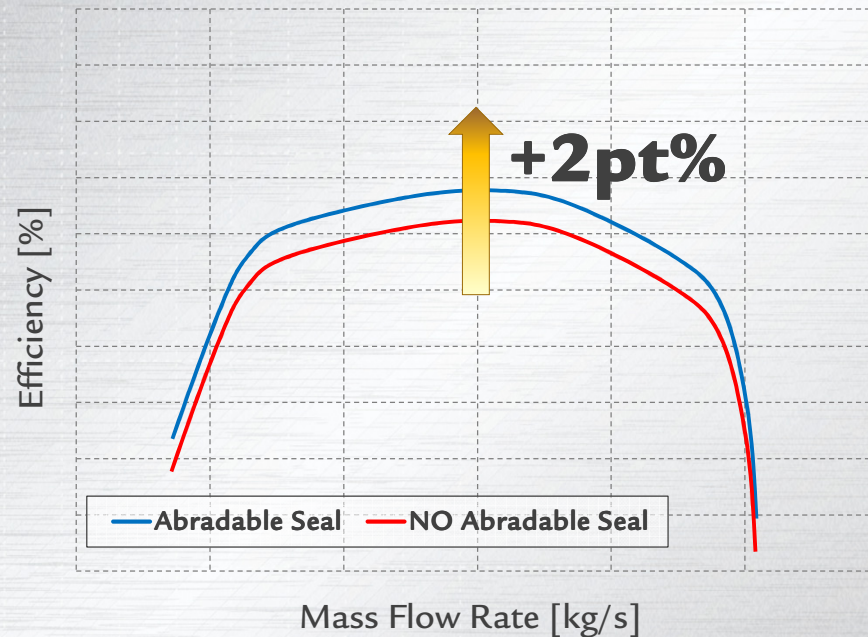
488 GTB TURBOCHARGER **BALL BEARING**

- Ball bearing allows 30% reduction in friction power in the turbocharger
- More efficient energy transfer in the turbocharger
- ➔ The compressor receives more power for the same turbine operating condition



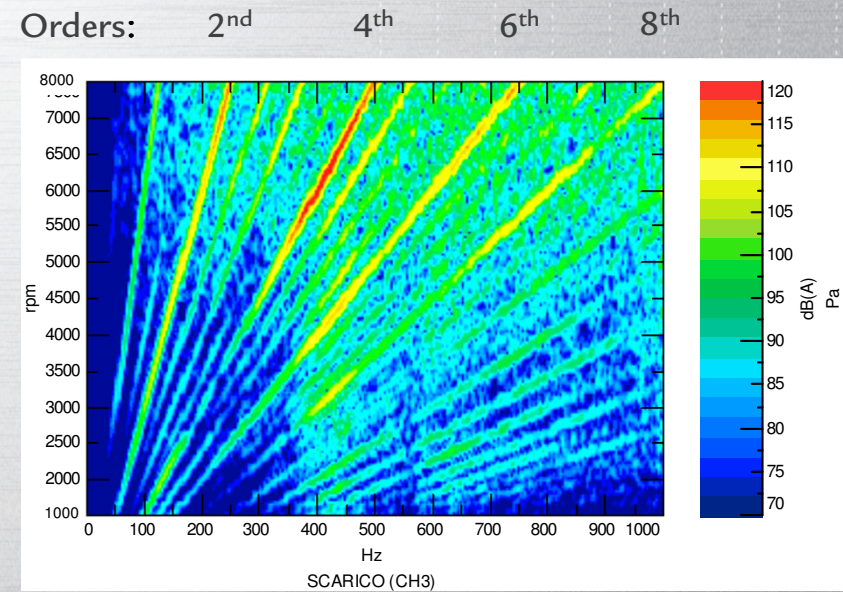
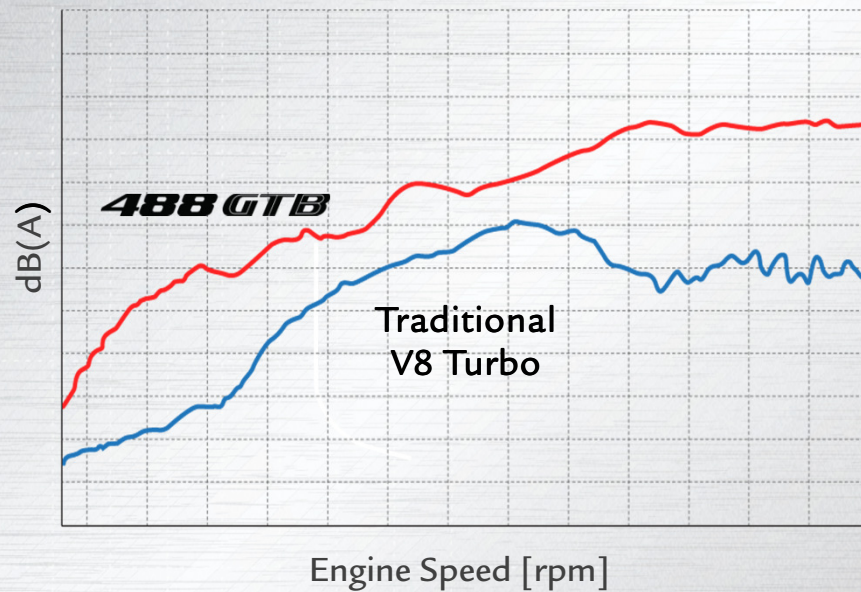
488 GTB TURBOCHARGER COMPRESSOR ABRADABLE SEAL

- Minimal running clearances → minimised aerodynamic ventilation losses between blades and casing
- +2pt% compressor efficiency:
 - Higher air density for the same turbine power → rated power and transient response improvement
 - Lower boost air temperature → smaller charge air intercoolers



488 GTB UNIQUE FERRARI SOUND

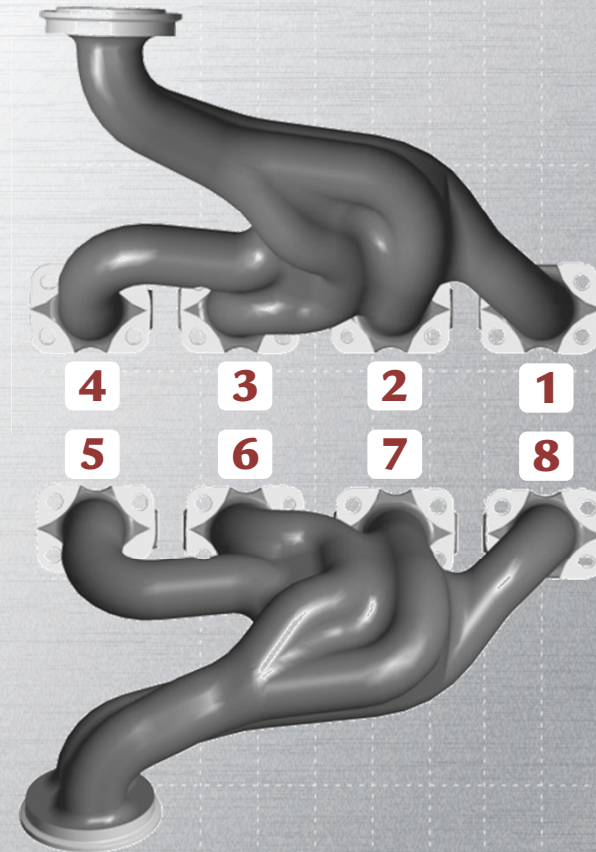
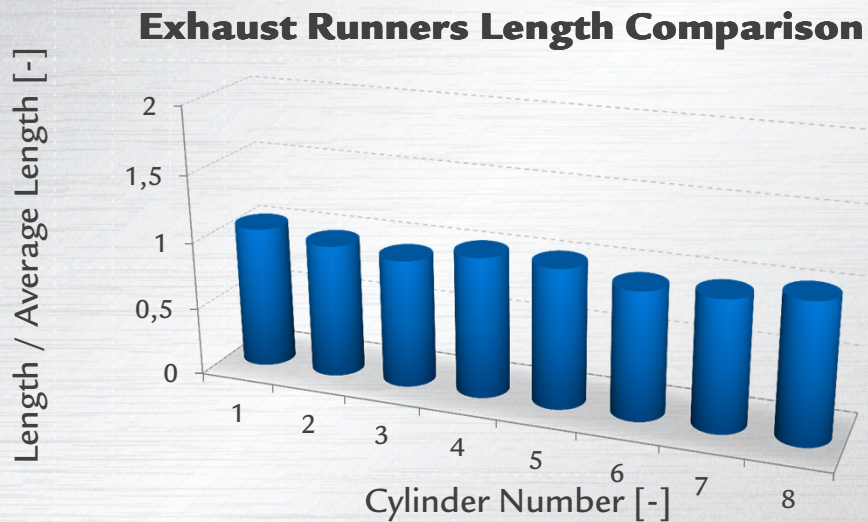
- Tuned exhaust runners
- Optimised exhaust system to emphasise engine harmonics
- Sharp and loud, unmistakable Ferrari sound



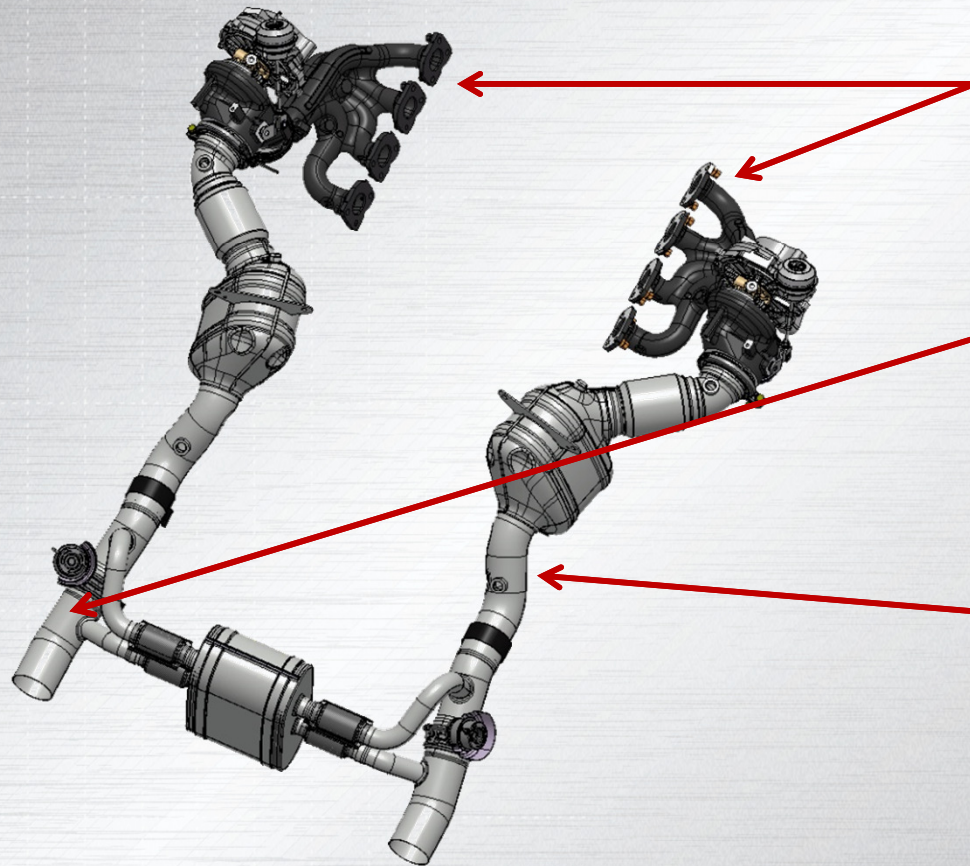
488 GTB UNIQUE FERRARI SOUND: EXHAUST MANIFOLD

Long, equal-length exhaust runners

- **Optimised** gas exchange
- **Minimised dispersion** among cylinders
- **Unique**, typical Ferrari soundtrack



488 GTB UNIQUE FERRARI SOUND: **EXHAUST SYSTEM**



Exhaust Manifold

- Same length runners
- Long runners

Silencer

- Large and straight primary pipes
- Optimised by-pass valve geometry for minimal pressure losses

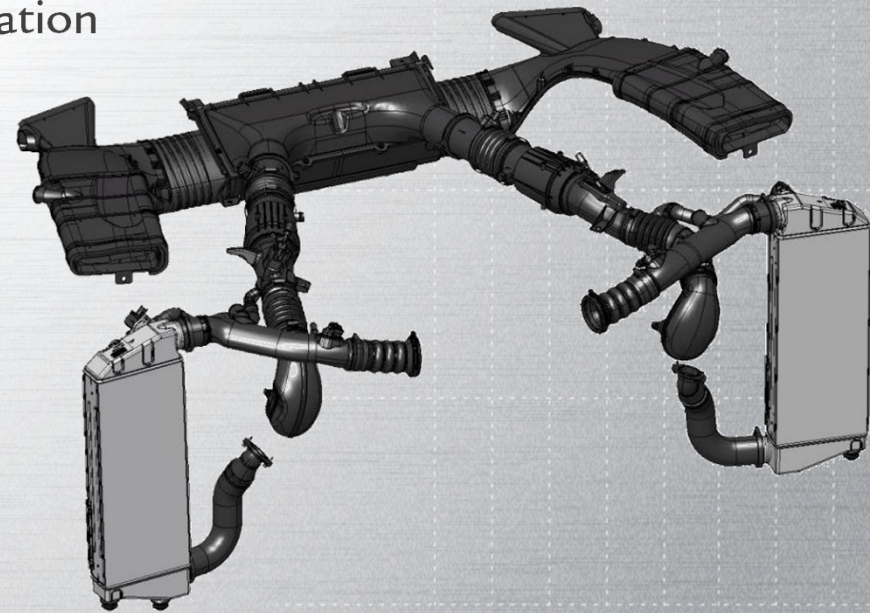
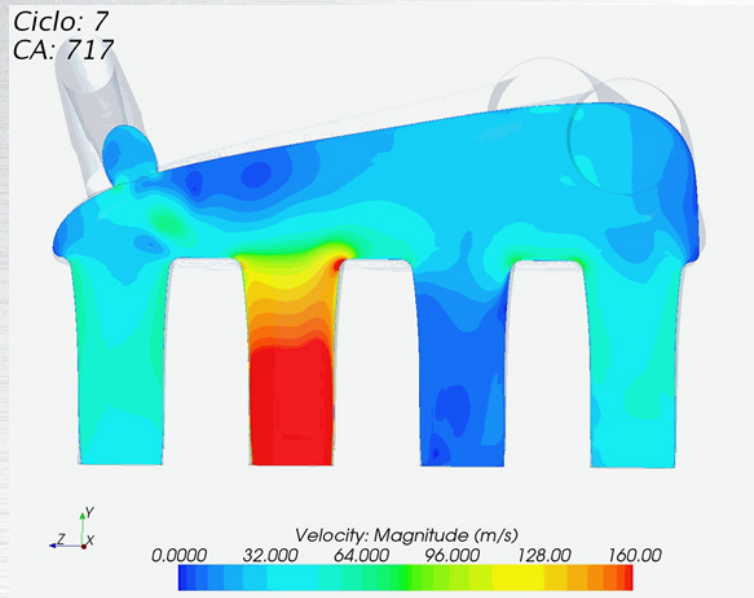
Exhaust Line Piping

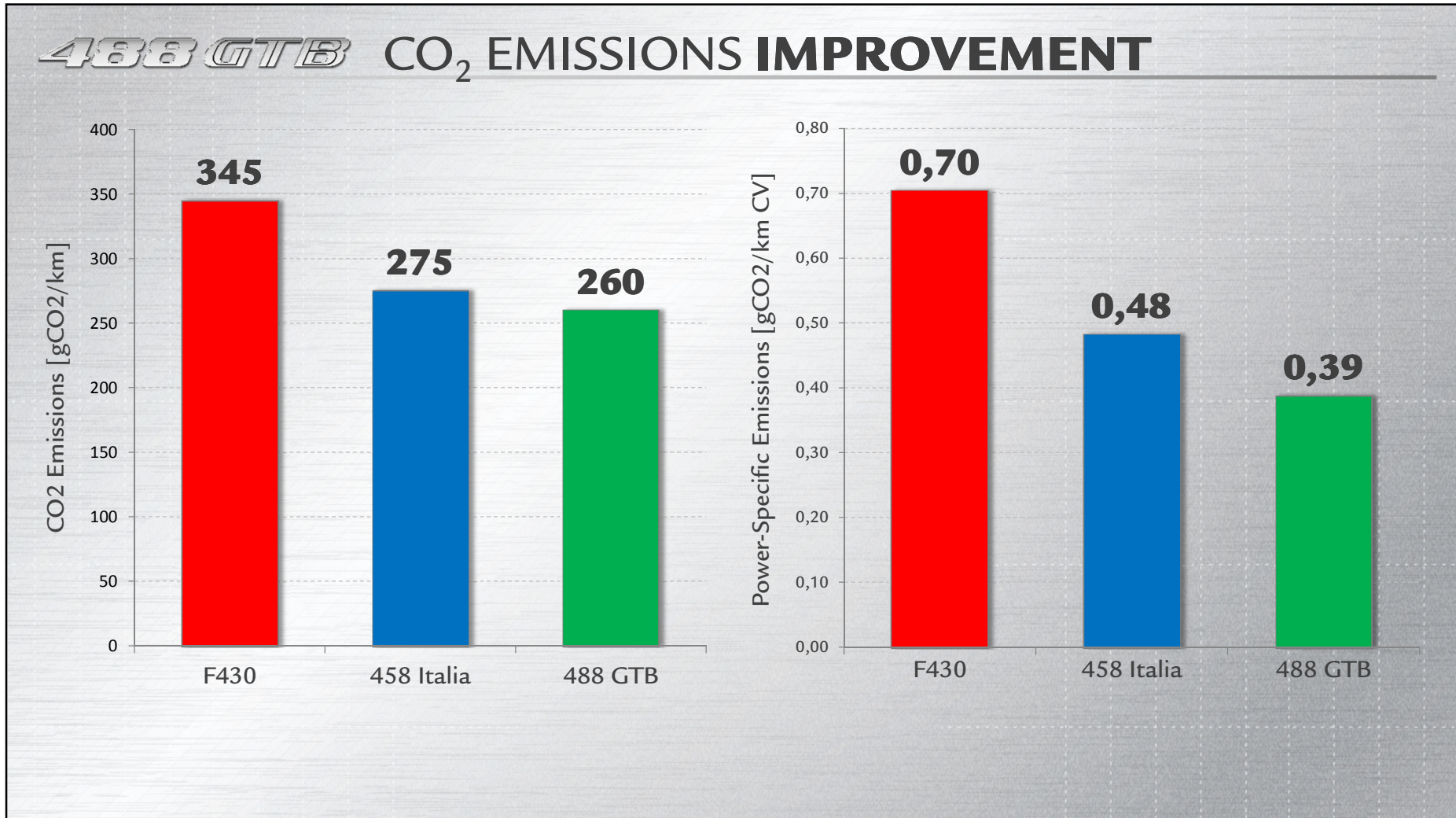
- Large diameters
- Minimal pressure losses

488 GTB UNIQUE FERRARI SOUND: INTAKE SYSTEM

Optimised Air Ducts

- Sharp and loud, unmistakable Ferrari sound
- Intake manifold with separated banks + even firing order (flat crankshaft)
- Tuned pipes with minimised energy dissipation







488 GTB

INTERNATIONAL MEDIA TEST DRIVE

THE ENGINE

