Alfa Romeo C4
Four Wheel Drive for four-leaf clover

Alessandro Avallone
Chief Engineer AWD Systems and Drivelines
Maserati Product Development
Rearview mirror: a glance at the roots of 1951: Matta
Rearview mirror: a glance at the roots of

1951: Matta
1983: 33 4x4
Rearview mirror: a glance at the roots of Q4

1951: Matta
1983: 33 4x4
1992: 155 Q4
Rearview mirror: a glance at the roots of Q4

1951: Matta
1983: 33 4x4
1992: 155 Q4
1994: 164 Q4
Rearview mirror: a glance at the roots of

1951: Matta
1983: 33 4x4
1992: 155 Q4
1994: 164 Q4
2004: 156 Q4
Rearview mirror: a glance at the roots of

1951: Matta
1983: 33 4x4
1992: 155 Q4
1994: 164 Q4
2004: 156 Q4
2007: 159 Q4
Alfa Romeo – Maserati Engineering used a unique «Top – Down» approach extending solutions developed for Quadrifoglio models to the whole vehicle range.
Alfa Romeo «Giorgio» Project: Blend tradition and Innovation

Alfa Romeo introduced many unique solutions aimed at ensuring the best possible driving experience.
Alfa Romeo «Giorgio» Project: Blend tradition and Innovation

Alfa Link® Patented Suspension System

- An upper control arm;
- Two decoupled lower links (handling and comfort link);
- A tie-rod steering arm;
- A co-axial spring and shock absorber group;
- A hollow aluminium knuckle.
Alfa Romeo «Giorgio» Project: Blend tradition and Innovation

IBS Brake by Wire System

Graz/Spielberg, May 9 to 10, 2019
Electrification & All-Wheel Drive Congress
Alfa Romeo «Giorgio» Project: Blend tradition and Innovation

Single piece Carbon Fiber Propshaft
Alfa Romeo «Giorgetto» Project: Blend tradition and Innovation

New V6 Turbo Engine
Alfa Romeo «Giorgio» Project: Blend tradition and Innovation

LSD and Torque Vectoring RDUs

Graz/Spielberg, May 9 to 10, 2019
Electrification & All-Wheel Drive Congress
Alfa Romeo Q4 AWD System: a new approach to vehicle dynamics

ON-DEMAND ALL-WHEEL DRIVE
FROM 50 TO 100% REAR-AXLE DRIVE

Cornering at 70km/h @ R=50m
Stabilization time*:
Alfa Romeo Q4 System: 2.1s
Best competitor: 2.65s
RWD car: no stabilization

* Simulation results
Alfa Romeo quadrifoglio: a look at the Driveline

Graz/Spielberg, May 9 to 10, 2019
Electrification & All-Wheel Drive Congress
Alfa Romeo AWD System: Active Transfer Case

Main Data:
Max input torque to ATC: > 5000Nm
Max input torque to Front Axle Drive: > 1100Nm
Reaction time: 0 to 90% of max torque to front axle 150ms
ABS event: from max torque to 10% residual torque 120ms

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Electrification & All-Wheel Drive Congress
Alfa Romeo 4WD System: Front Drive Unit

Small and Lightweight yet powerful:
Dimensions: Ring Gear Ø 150mm
Weight: less than 11kg with oil
Torque Capacity: 4000Nm Max Torque on the Ring Gear
High efficiency: drags less power and improves fuel economy
High power density: market’s best input torque to weight ratio
A BEST IN CLASS SYSTEM WITH UNIQUE FEATURES

Safe and sporty: auto adaptation to driving style and road conditions allows the driver to enjoy best performances in full safety

Fast response time and high torque accuracy due to high performance integrated actuator in the ATC

High efficiency: drags less power and improves fuel economy

High reliability: pumpless design and enhanced thermal capacity
THANKS
FOR YOUR ATTENTION