



RITMO

RITMO BRINGS A NEW RHYTHM TO FIAT IN AUSTRALIA!

The all-new Fiat Ritmo arrives in Australia today (1 February 2008) providing a new level of style, performance and excitement that only a car infused with Italian soul can deliver.

“Five door family hatchbacks are not renowned for flair or excitement but the Fiat Ritmo is set to change everything with fresh dynamic styling inside and out, cutting edge engines that deliver performance and economy and a chassis that is sharp, responsive and great fun” says David Stone, General Manager for Fiat Cars in Australia. “Developed from the styling seen on the award-winning Punto, the Ritmo has the effortless style for which Italy is so famed, with a breathtaking overall shape and fine detailing.”

“The Ritmo is powered by two unique engines, the new 1.4 litre T-Jet Turbo petrol engine that pumps out 110 kW and which offers the ability to provide more acceleration literally at the press of a button, and the acclaimed 1.9 litre JTD Multijet diesel. Equipment levels are lavish and pricing is keen, so the Ritmo will enable Fiat to take the next step up in our growth plans for the marque in Australia.”

The new Ritmo joins the Fiat Punto, which relaunched Fiat in Australia last year and is the first of two new models to be launched in 2008 that will redefine Fiat’s position in the car market. The Ritmo is a strong entrant into the upper end of the increasingly important small car market sector, while the Fiat 500 which will arrive in March is, quite simply, the most sort-after new car to enter the Australian car market in 2008.

Initially Fiat will offer four versions of the Ritmo in Australia, with additional models to arrive in 2008, including self-shifting gearbox versions. The two trim and equipment levels, Emotion and Sport, are offered with a choice of the advanced 1.4 litre 110 kW T-Jet petrol engine and the 1.9 litre 110 kW JTD Turbo Diesel, with prices starting with a recommended retail price of \$29,990 for the Fiat Ritmo Emotion T-Jet.

Augmenting an interior design founded on the fundamental pre-requisites of class-leading space, exemplary build quality, and visual and tactile sophistication, the new Fiat's equipment specification has been carefully considered to simplify and enhance life on board. Interior trim is not just good to look at; it also provides a wonderful tactile experience, with different textures to delight on touch for interior trim and upholstery.

Both Emotion and Sport versions are fully equipped, offering electric windows and exterior mirrors, cruise control, power steering, remote central locking, an advanced audio system, AirCon, alloy wheels and a host of other features as standard.

As befits its name, the Sport adds comprehensive performance orientated equipment package, including rear spoiler; sideskirts; Climate Control AirCon; sports pedals; front sports seats with lumbar adjustment of driver's seat; leather sports steering wheel, gear lever and handbrake knobs; sports upholstery, red brake callipers and 17" sports alloys with 225/45 tyres.

The Sport versions also come with the innovative Blue&Me integrated telematics system developed in a joint venture with Microsoft, which has proven so popular that more than 20 per cent of Fiat vehicles sold in Europe are now equipped with it. In simple terms, it offers hands-free system with Bluetooth™ technology with steering wheel controls, instrument panel with multifunction display, MP3 audio file player from a USB port and SMS text reader.

While right is fully endowed with Italian 'brio' and spirit, it is also supported by cutting edge design and development technology that ensures that its beauty is also more than matched by brains.

The new Ritmo, using a name derived from the Italian word for rhythm was created in just 18 months from design 'freeze' to production. To achieve this record-breaking development time, Fiat employed new, groundbreaking, state-of-the-art Computer Aided Design (CAD) and Computer Aided Engineering (CAE) systems of unprecedented power and complexity, allowing the development of this new hatchback to be undertaken almost entirely through virtual analysis and engineering.

So sophisticated is the computer software involved, that not only could Fiat's engineers simulate every aspect of the Ritmo's structural, dynamic, NVH and accommodation characteristics to a level of unprecedented detail, but they were also able to create a virtual production-line to ensure consistently outstanding component and build quality.

The benefits of these all-encompassing developments in virtual design and engineering are clearly evident in every aspect of the new Fiat Ritmo, from consistently high build quality and class-leading passenger accommodation, to superior driving dynamics, minimal NVH levels and, of course, outstanding safety provision.

The new Ritmo has been awarded a maximum 5-star rating for adult occupant protection in the gruelling Euro NCAP crash test programme.

Achieving 5 stars for adult occupant safety, 3 stars for child protection and a further 2 for pedestrian protection, the new Fiat recorded 33 points, placing it among the leaders of its category in terms of passive, active and preventive safety.

The 1.4 litre T-Jet 110 kW turbocharged petrol engine, makes its debut in the Ritmo. This is the second example of a new family of turbocharged petrol units developed by Fiat Powertrain

Technologies to combine the sporting performance and low NVH characteristics of a petrol engine with fuel economy comparable to a diesel unit and CO₂ emission levels which readily comply with increasingly stringent European regulation.

Through cubic capacity downsizing allied to the adoption of the smallest possible turbocharger, Fiat's responsive new 110 kW 1.4 litre T-Jet engine combines performance equal to or better than a conventionally aspirated 1.8/2.0 litre petrol engine, but with a reduction of between 10% and 20% in fuel consumption and emissions.

The T-Jet engine offers an 'overboost' button located on the centre console in Sport versions, will deliver an impressive 230 Nm at 3000 rpm, endowing the Ritmo with a 0-100 kmh acceleration time of 8.2 seconds and a top speed of 208 kmh. Notwithstanding such lively performance, this superbly responsive powerplant will still return 7.1 l/100 km in the combined cycle and restrict CO₂ emissions to just 167 g/km.

The 110 kW 1.9 litre MultiJet unit in the new Ritmo boasts an impressive 305 Nm torque delivered at just 2000 rpm, allowing acceleration from 0-100 kmh in just 9.0 seconds and a top speed of 209 kmh, whilst returning a fuel consumption of less than 5.6 litres in the combined cycle.

With a 5-star Euro NCAP safety rating to its name, the new Fiat Ritmo builds on an already impressive safety portfolio with the full range of braking, traction control and stability systems available on the market today: ABS anti-lock brakes, complete with electronic brakeforce distribution, ASR to limit wheel spin during acceleration, MSR to modulate engine brake torque whilst changing down, and a sophisticated ESP to control vehicle stability through bends, which includes hydraulic brake assistance and a Hill Holder function to facilitate smooth hill starts.

"The new Fiat 500 notwithstanding, the Fiat Ritmo is probably the most important car that Fiat will launch this year," says David Stone. "It launches Fiat into a key market sector, one which not just contains some of the key models in the market as a whole, but also which, as the market downsizes in response to environment issues and fuel prices, is becoming a market more important Australian market sector. The Fiat Ritmo has the abilities to take on the key players in the market and its Italian soul will offer car buyers a car that is fresh, vital and dynamic, while being backed by state of the art safety, reliability and durability. We believe it makes a compelling case and represents one of the strongest models in its category."

THE FIAT RITMO IN DETAIL

DESIGN

Combining class-leading accommodation with exemplary build quality, flexible practicality, generous equipment levels, and state-of-the-art technology and driving dynamics, the all-new Fiat Ritmo was created in just 18 months, from design 'freeze' to production.

To achieve this record-breaking development time, Fiat Auto employed new, groundbreaking, state-of-the-art Computer Aided Design (CAD) and Computer Aided Engineering (CAE) systems of unprecedented power and complexity. Obviating the need for inefficient, costly, and time consuming physical prototype studies other than for final 'sign off', the development of the new Ritmo was undertaken almost entirely through virtual analysis and engineering.

Virtualisation of every aspect of design and manufacture creates a practically infinite number of prototypes which can be subjected to unlimited testing, measuring unprecedented quantities of information to explore and optimise every aspect of vehicle behaviour in the smallest detail.

So sophisticated is the computer software involved, that not only could Fiat's engineers simulate Ritmo's structural stiffness, driving dynamics, NVH levels, aerodynamic efficiency, fuel economy, visibility zones, impact characteristics, durability and even air-conditioning functionality, but they were also able to create a virtual production-line. Virtualisation of the assembly-line included a 'total immersion' approach, employing virtual reality equipment to optimise on-line manufacturing techniques, whilst component supplier access to every CAD/CAE stage afforded continuous specification revision before final quality verification and manufacture.

The benefits of Fiat Auto's ground-breaking developments in virtual design and engineering are clearly evident in every aspect of the new Ritmo, from consistently high build quality and class-leading passenger accommodation, to impressive driving dynamics, minimal NVH levels and outstanding safety credentials.

Styling

Designed by the Fiat Styling Centre, the new 5-door Fiat Ritmo marries smooth, naturally aerodynamic lines with pronounced, muscular wheel arches to create an elegant, dynamic and sporting design. The new Ritmo shares some of the styling cues first introduced in the highly successful Punto range, making it instantly recognisable as a significant addition to a new generation of attractive family vehicles from Fiat.

The front end of the new Ritmo features dynamic, assertive styling worthy of the Italian GT tradition. It incorporates sleek, powerful, teardrop headlamps with a crisp, sporting grille design, an integral, colour-coded bumper and a deep front airdam complete with recessed foglight housings. Safety has been an important design consideration, and the Ritmo's wide bonnet, tapered bumper structure and rounded front profile ensure that the new Fiat is endowed with a high standard of pedestrian protection.

The new Fiat logo made its debut on the Ritmo at its European launch and now being used on all models. Created jointly by brand strategy designers RobilantAssociati and the Fiat Styling Centre, the new symbol evokes the famous shield that adorned Fiat cars from 1931 to 1968, with vertically elongated letters standing out against a ruby red background encased in a rounded chrome frame.

“Fiat decided to acknowledge the progress achieved so far, by changing its logo, as a tangible sign of the new impetus that is projecting Fiat towards future challenges,” says David Stone. “This is why the new logo is making its debut on the new Ritmo, before being gradually adopted on all Fiat models.”

In profile, the bonnet and front wings flow seamlessly into a steeply raked windscreen. The resultant aerodynamic efficiency bestows enhanced high-speed stability, a reduction in wind noise intrusion to the interior, and enhanced fuel economy. Aerodynamic, door-mounted mirrors further reduce interior wind noise levels, and also emphasise the Ritmo’s tapering waistline, which reinforces the smooth homogeneity of the design.

At the rear, large, high visibility tail light clusters recall those of the previous Ritmo, and flank a practical, top hinged tailgate – with an integral roof spoiler housing the third stop light – which offers full-width access to the loadspace across a low-silled aperture. The new Fiat’s broad, purposeful stance is further strengthened by an aerodynamic lower bumper, housing slender fog and reversing light clusters.

Life on board

With dimensions of 4336 mm long, 1792 mm wide, 1498 mm high and with a wheelbase of 2600 mm, the new Ritmo offers spacious accommodation, sound ergonomics and high build quality allied to a comprehensive equipment specification.

Painstakingly refined through the use of virtual reality ergonomic structuring techniques, the combination of a height adjustable driver’s seat with optional lumbar adjustment, rake and reach adjustable steering wheel, and generous glazing afford the Fiat Ritmo driver a comfortable, ergonomically adaptable driving position allied to excellent all-round visibility.

The driver’s instrument binnacle flows seamlessly from the soft-touch, carbon look upper fascia and features deeply recessed dials with graphics backlit in orange after dark. A clear, intuitive, central multi-function display gives access to a wide range of menu options in a choice of nine languages. Careful consideration has gone into the ergonomic placement of gear lever, steering column mounted switchgear and all other centre console based functions, to ensure optimum ease of access with minimal driver distraction.

The seats, produced in accordance with principles developed by the Biometrics Department at the CONI Sport Medicine Institute, offer exceptional comfort and support, devoting particular attention to passenger posture and lateral containment.

The height adjustable, anti-submarining front seats incorporate an improved lumbar support system, and are padded with a foam that adapts to the shape of the body. They are fitted with an anti-whiplash system, and lumbar adjustment is available for the driver’s seat. At the rear, a 60:40 split/folding rear bench offers seating for three, and may be folded flat to increase the Ritmo’s loadspace from 365 litres (with spare wheel) to a capacious maximum of 1175 litres. Both outer rear seats include ISOFIX mountings for a child seat.

The new Ritmo’s passenger compartment is notable for both ease of access and spaciousness. Of particular note is the class-leading cabin width at shoulder height and the substantial, 240 mm longitudinal adjustment of the front seats.

Reinforcing the quality of the Fiat Ritmo’s stylish interior, increased visual and tactile sophistication is offered through the high-gloss centre console and air-conditioning control surrounds, and a highly innovative range of colour combinations to the two-tone dashboard,

including the use of soft-touch blue, anthracite, brown or black carbon look finishes. A complementary range of fabric upholstery to seats and door panels, as well as optional leather trims, offers further bespoke tailoring opportunities.

The new Ritmo interior is one of the most practical in its category, with a useful storage drawer under the front passenger seat, a refrigerated compartment, door pockets, a centre console with space for bottles, documents, maps and coins, storage compartments on the fascia for keys, sunglasses and remote controls, and a large glovebox.

NVH

Particular emphasis has been placed on eliminating the transmission of Noise Vibration and Harshness to the cabin of the new Fiat Ritmo, further enhancing on-board comfort with the quietest possible, vibration-free interior.

The extensive deployment of sound absorbing materials has been further bolstered by the introduction of numerous expandable, sound-deadening partitions located within the box sections of the Ritmo's monocoque structure, preventing noise propagation and isolating the passenger compartment from the outside world.

Vibration is limited by a particularly rigid bodyshell structure which has recorded a flexural rigidity of 960 daN/mm and torsional rigidity of 121,800 daNm/rad –outstanding results in a car with a full height tailgate. Particular attention has also been paid to the vibration-free mounting of all mechanical elements including engine, suspension and steering column.

SAFETY

The new Ritmo has been awarded a maximum 5-star rating for adult occupant protection in the gruelling Euro NCAP crash test programme. Achieving 5 stars for adult occupant safety, 3 stars for child protection and a further 2 for pedestrian protection, the new Fiat recorded 33 points out of a possible 37, placing it among the leaders in its category in terms of passive, active and preventive safety.

This is an important accolade which, together with similar ratings already achieved by the Grande Punto and other Fiat Group products, is further confirmation of Fiat's commitment to all aspects of driver and passenger protection.

To achieve this outstanding result, over 15,000 hours of computations were carried out, along with 60 crash tests, 150 simulations with the HyGe sled and 100 tests on components and subsystems, encompassing every possible type of accident: head-on and lateral collisions, rollovers, rear-end collisions and fire. Other factors taken into consideration included the different speeds at which accidents occur, obstacles, pedestrian protection, and the protection of occupants with widely differing physical attributes.

PREVENTIVE SAFETY

The new Fiat Ritmo meets preventive safety needs with an adjustable cockpit that adapts perfectly to drivers of any size. The combination of a height adjustable driver's seat and reach and rake adjustable steering, allied to an extensive glazed area, allows the best possible view of the road ahead. User-friendly ergonomics allow drivers to operate all instruments and controls without taking their eyes off the road. And the new Ritmo's excellent all-round visibility is further enhanced by foglights that illuminate the road around corners.

PASSIVE SAFETY

Allied to a chassis designed to provide exceptional torsional stiffness (121,800 daNm/rad) yet absorb impact with maximum efficiency, all versions of the new Fiat Ritmo, with the exception of the entry level car, are equipped with six airbags, whilst height adjustable front seatbelts with pretensioner, load limiter and fastened sensor, three-point rear seatbelts, anti-submarining front and rear seats, five head restraints, ISOFIX child seat attachments to outer rear seats and an FPS Fire Prevention System are all fitted as standard.

Airbags

All versions of the new Fiat are equipped with six airbags fitted as standard; driver and passenger front airbags – including a driver's dual-stage 'Smart 2' bag – side airbags and two side curtain airbags providing head protection in the case of side impacts. Their operation is governed by an electronic control unit that evaluates crash severity via a number of sensors located throughout the car.

The front passenger airbag may be deactivated manually via the menu on the control panel. A dashboard warning light indicates this condition.

Fire Prevention System

The FPS includes a cut-off valve and an inertia switch which immediately locks the electric petrol pump. This prevents fuel loss in the case of impact, roll-over or damage to the fuel lines. The fuel tank is formed in a plastic resistant to mechanical stress and fire. Special care has been taken over the location of key components within the engine bay, electrical system, fuel system and brakes to minimise the risk of accidental damage. And the new Ritmo's interior trim is also flame resistant.

ACTIVE SAFETY

The new Fiat Ritmo offers the full range of braking, traction control and stability systems available on the market today: ABS anti-lock brakes, complete with Electronic Brakeforce Distribution, ASR to limit wheel spin during acceleration, MSR to modulate engine brake torque whilst changing down, and a sophisticated ESP to control vehicle stability through bends with hydraulic brake assistance and a Hill Holder function to facilitate smooth hill starts.

Brakes and Tyres

The servo assisted braking system features two independent crossover hydraulic circuits to ensure prompt, linear braking and shorter stopping distances. The brakes use 281 mm x 26 mm ventilated front discs and 251 mm x 10 mm solid discs at the rear. As standard alloy wheels shod with 225/45 R17 tyres are fitted.

ABS

An advanced ABS system, featuring four active sensors, four channels and a hydraulic control unit with eight solenoids, is fitted as standard across the entire Fiat Ritmo range.

The system is complemented by an Electronic Brakeforce Distributor (EBD) that governs the braking action on the rear axle to prevent the wheels locking and ensure full control of the car in all situations. The system also adapts its operation to wheel grip conditions and brake pad efficiency to reduce pad overheating and the brake servo thrust requirement.

ASR and MSR

The new Ritmo can also be equipped, as an option, with a sophisticated Anti Slip Regulation system (ASR) to restrict wheel spin in conditions of reduced grip. ASR traction control works at

any speed, and prevents the driven wheels from spinning by adjusting torque according to available levels of grip.

MSR (Motor Speed Regulator) intervenes when a gear is shifted down abruptly in low grip conditions. The system restores torque to the engine to prevent a slide as a result of wheel lock-up.

ESP

The new Fiat Ritmo is equipped with a permanently engaged Electronic Stability Programme (ESP) which activates to help control the car when its stability is at risk.

Via sensors monitoring car body rotation, lateral acceleration and steering wheel input, the system assesses vehicle stability and the proximity of either an understeer or oversteer slide. The system restores stability by applying smoothly modulated braking to the appropriate wheel individually, and simultaneously reducing engine power. Engine power reduction is also carefully modulated to ensure a minimum of performance loss and, hence, continued driver satisfaction.

Hill Holder

Fiat's Hill Holder system helps drivers pull smoothly away from an upwards-facing hill start. Operating via the ESP longitudinal acceleration sensor when first gear is engaged and both clutch and brake pedals are pressed, the control unit maintains front calliper pressure for about 1.5 seconds after the brake pedal is released to eliminate the risk of rolling backwards and ensure a smooth pull away. Hill Holder does not operate when setting off downhill in first gear, but does so when reverse is engaged and the driver wishes to back uphill.

MODEL RANGE AND EQUIPMENT

Initially two trim and equipment versions of the Ritmo will be offered in Australia, The Emotion and the Sport versions. The Emotion package starts with ABS, dual zone climate air-conditioning, cooler unit for food and drinks, remote central locking, six airbags, electric windows, a CD player, leather steering wheel audio controls, Dualdrive electric power steering, 16 inch alloy wheels, foglights and Follow Me Home headlamps.

The Sport version adds equipment with performance edge:

- Leather sports steering wheel, gearknob and handbrake gaiter
- Sport seats
- Driver's seat lumbar adjustment
- Sport pedals
- 17" alloy wheels
- Sports suspension
- ESP with ASR/MSR, HBA and Hill Holder
- Rear spoiler and sideskirts
- Chrome window strip
- Climate AirCon
- Blue&Me Telematics system
- Bespoke interior trim
- Red brake callipers and chrome tailpipe
- Sports instruments

Cornering Foglamps

Unique to this market segment, the new Fiat Ritmo is fitted, as standard, with foglights that illuminate the road around corners. Operating at slow speeds when the vehicle's headlights are switched on, the system automatically activates the foglight corresponding to the direction of travel when sufficient steering lock has been applied, greatly improving visibility at junctions and during parking manoeuvres.

Dualdrive electric power steering

All Ritmo versions are equipped with this innovative, speed-sensitive power steering system, which comes with two operating modes and uses an electric motor, rather than a hydraulic pump driven by the engine, which results in a considerable reduction in both fuel consumption and noise.

The system offers a choice of two settings: the first ensures maximum feedback and driver involvement, the second lightens the steering to minimise effort, and is therefore ideal for urban driving and low speed manoeuvring.

Pressing the 'City' button on the fascia activates the latter mode. But, to ensure maximum safety under all driving conditions, both settings offer identical power assistance over 19 mph, thus ensuring a steering wheel response suited to high speed driving.

Follow Me Home headlights

A practical, safety-conscious innovation designed to light the interior of a garage or the path to one's front door after the car has been locked, Follow Me Home activates the dipped beams and sidelights of the Ritmo. The driver simply operates the light flasher stalk within two minutes of switching off the engine. Each time the stalk is operated, light activation is extended by 30 seconds up to a maximum of three-and-a-half minutes.

Blue & Me

Standard on the Sport models, Blue & Me is an innovative, Windows Mobile based system arising out of a joint venture between Fiat and Microsoft. The easy-to-use system employs Bluetooth technology to allow vehicle occupants to communicate with the outside world via mobile phones.

One year after its launch, the Blue & Me system is enjoying considerable commercial success and is the recipient of numerous awards, including business research and consulting firm *Frost and Sullivan's* 2006 Excellence in Technology of the Year Award for European Automotive Telematics and Infotainment; and *Telematic Update of Detroit's* Best Telematic Solution of the Year 2006. Furthermore, *Automotive News Europe* awarded the Eurostats 2006 prize to Giuseppe Bonollo, Vice President Product Portfolio Management, for the success of the system installed in Fiat Group cars.

Blue & Me is fully integrated into the vehicle, and offers a sophisticated hands-free system with voice recognition, that allows customers with Bluetooth mobile phones to make and receive calls without operating the mobile handset itself. The control keys are located on the steering wheel, and include the facility to scroll search through a mobile's phone book, as well as muting the system for a private call. Users store their mobile number only once on the system, and a personal phone book may be transferred fully and then automatically updated whenever the system detects the mobile phone.

No voice learning stage is required, due to the state-of-the-art voice recognition system. Blue & Me is able to store up to five mobile phones simultaneously, thus permitting more than one vehicle occupant to make immediate use of the system.

In addition, the system features a USB port located on the Ritmo's centre console to facilitate the playback of music audio files via any digital system with an analogue connection, such as MP3, WMA, WAV, smart phones or a USB flash drive.

Dual Zone climate control

The Dual Zone climate control that is standard on the Sport model makes it possible for driver and front seat passenger to select different air flows and a temperature differential of up to seven degrees on either side of the cabin.

The system uses numerous sensors to monitor both ambient temperature and solar gain within the two zones and adjust the temperature accordingly. It also operates a bi-level function whereby warmer air can be directed to the floor vents and cooler air to the dashboard vents. The system further features a highly efficient active carbon pollen filter, and an Air Quality Sensor which automatically activates the climate control recirculation function to prevent the intake of air in areas of high smog.

OPTIONAL EQUIPMENT

The new Fiat Ritmo's comprehensive standard equipment package is further enhanced by a range of innovative, safety and comfort enhancing, a SkyDome sunroof, rain and parking sensors and a tyre pressure sensor,.

Sky Dome sunroof

The Sky Dome, a large, crystal-glass sunroof, occupies 1.24 square metres; some 77% of the Ritmo's total roof surface. It consists of two glazed panels – one fixed and one mobile – and two sunblinds that may be independently retracted towards the rear of the car.

Via a button adjacent to the central courtesy light, the retractable glass panel becomes a raised spoiler in the first position, thereafter sliding on aluminium guides to the fully opened position. Releasing the control button stops the movement at any required position. Both glass front panel and sunblind may be fully opened in just seven seconds.

ENGINES AND TRANSMISSIONS

The Ritmo is launched in Australia with a choice of two engines, a unique 1.4 110 kW turbocharged petrol that produces 110 kW and the a 1.9 litre Turbo diesel that also produces 110 kW. Both are attached to six speed manual gearboxes.

Petrol Engine

1.4 16v T-Jet 150 bhp

Capacity	1368 cc
Valves	4-cylinders, 16 valves
Power:	110 kW @ 5500 rpm
Torque:	206 Nm @ 2250 rpm Sport mode selected: 230 Nm @ 3000 rpm
Top speed:	208
Acceleration 100 kmh:	8.5/8.2 with overboost
Fuel consumption:	
in town:	9.3
out of town:	5.8
combined	7.1
CO ₂ :	167 g/km

The 110 kW 1.4 litre 16 valve T-Jet engines is the first example of a new family of turbocharged petrol units developed by Fiat Powertrain Technologies to combine the sporting performance and low NVH characteristics of a petrol engine with fuel economy comparable to a diesel unit and CO₂ emission levels which readily comply with increasingly stringent European regulation.

Through cubic capacity downsizing allied to the adoption of the smallest possible turbocharger, Fiat's responsive new 110 kW 1.4 litre T-Jet engines combine a performance equal to or better than a conventionally aspirated 1.6/1.8/2.0 litre engine with a reduction of between 10% and 20% in fuel consumption and emissions.

Employing state-of-the-art computer aided design and calculation systems to simulate unit stress under turbocharging, every aspect of the 1.4 litre powerplant has been re-evaluated.

Three-dimensional computational fluid-dynamics studies of the entire thermodynamic cycle, injection phase and the engine cooling circuit, as well as thermo-mechanical analysis of cylinder head, block and piston stress resulted in comprehensive redevelopment of the combustion system, intake and exhaust manifolds, cam profiles and phasing, intake system, engine coolant circulation and spark plugs.

The new T-Jet engines feature optimised intake port and manifold design; a revised injection system and bespoke spark plug design to improve knock resistance and pre-ignition; a reduction in both inlet and exhaust valve lift time to optimise air mass flow; a reduction in compression ratio from 11:1 to 9.8:1; piston, con-rod and crankshaft redesign; a new, reduced volume exhaust manifold for maximum exploitation of the exhaust pulse energy, and improved engine cooling efficiency through a revised coolant path and a redesigned water pump impeller.

Excellent combustion characteristics have allowed for the adoption of a notably small turbocharger. With a turbine diameter of only 33 mm, this highly compact and responsive turbine is located directly above the exhaust manifold, with the attendant catalytic converter close-coupled to the turbine exit.

Via a 'drive-by-wire' throttle system, the new 1.4 litre T-Jet engines provide outstanding low-end torque, almost entirely devoid of the lag in power delivery traditionally associated with turbocharger installations.

The T-Jet engine offers an 'overboost' button located on the centre console in Sport versions, will deliver an impressive 230 Nm at 3000 rpm, endowing the Ritmo with a 0-100 kmh acceleration time of 8.2 seconds and a top speed of 208 kmh. Notwithstanding such lively performance, this superbly responsive powerplant will still return 7.1 l/100 km in the combined cycle and restrict CO₂ emissions to just 167 g/km.

The MultiJet engine: a breakthrough in diesel technology

The common rail high pressure direct injection diesel fuel system was designed and developed by the Fiat Group in the 1980s, with contributions from Magneti Marelli and the Fiat Research Centre. It was handed over to Bosch for the final stages of development and industrial production in the early 1990s, and the first car to use the new system was the Fiat Group's Alfa Romeo 156 JTD in 1997.

JTD revolutionised diesel engine design, allowing Fiat JTD units to set new dynamic standards and compete head on with petrol engines across nearly all criteria, whilst still retaining the core diesel values of reliability, low maintenance, reduced CO₂ emissions and exceptionally low fuel consumption figures.

In 2002, the Fiat Group was awarded the prestigious Economist Innovation Award (Energy and Environment category) for its ground-breaking work in developing the 'common rail' diesel technology that is now used by almost every major European car maker.

The sophisticated MultiJet technology of second generation JTDs differs from its UniJet predecessor in two essential areas; the injectors and the electronic control unit.

Within a UniJet engine, a pilot injection raises temperature and pressure inside the cylinder to improve combustion at the time of the main stroke. However, by dividing the main injection into a number of smaller injections, a MultiJet engine affords a fuller, more gradual combustion whilst the amount of diesel burnt at each stroke remains the same; thus abetting smoother, quieter combustion, reduced emissions and increased performance.

To facilitate multi-injection, the injectors can both reduce the time lag between injections from 1500 to just 150 microseconds, and reduce the minimum quantity of fuel injected from 2 to less than 1 cu mm. In tandem, the new control unit modulates injection strategy continually to adjust to changes within three parameters; engine rpm, torque required at any given time by the driver, and coolant temperatures.

Thus, when coolant temperature is less than 60 degrees and torque requirement low, two small and one large injection are performed. As torque demand increases, the number of injections drops to two; one small and one large. Under conditions of high rpm and high torque demand, only one injection is required, whilst with coolant temperature at over 60 degrees, emissions are minimised with one small, one large, then one small injection in the sequence.

Hence, whilst performance is substantially enhanced, start-up times and exhaust smoke are reduced, noise levels and vibration are lowered to ensure a quieter drive and improved passenger comfort, and both fuel consumption and emissions are significantly reduced. All Fiat MultiJet turbodiesel units easily fulfil Euro 4 emissions requirements.

1.9 MultiJet 16v

Capacity	1910 cc
Valves	4-cylinders, 16 valves
Power:	110 kW @ 4000 rpm
Torque:	305 Nm @ 2000 rpm
Top speed:	209
Acceleration 100 kmh:	9.0
Fuel consumption:	
in town:	7.6
out of town:	4.5
combined:	5.6
CO ₂ :	149

The common rail system includes two new control strategies for automatically calibrating and balancing the diesel injection, to lower noise and reduce vibration. Both engines are equipped with electronically controlled, variable geometry Garrett VGT 17 turbochargers for improved power delivery and the generation of high torque at low engine speeds. Both units deliver 90% of peak torque between 1750 rpm and 3250 rpm.

With a bore of 82 mm and stroke of 90.4 mm, the 110 kW 1.9 litre MultiJet unit in the new Ritmo boasts an impressive 305 Nm torque delivered at just 2000 rpm, allowing acceleration from 0-100 kmh in just 9.0 seconds and a top speed of 209 kmh, whilst returning a fuel consumption of less than 5.6 litres in the combined cycle.

Fully compliant with Euro 4 emissions requirements, the MultiJet unit incorporates an electronic EGR system which cools the recirculating exhaust gases, and a close-coupled, high efficiency catalytic converter.

RIDE AND HANDLING

The new Fiat Ritmo employs the proven combination of independent MacPherson strut front suspension and a lightweight torsion beam axle at the rear, to promote outstanding handling precision and maximum ease of driving, allied to optimum road holding and the highest possible comfort standards for driver and passengers.

Allied to a bodyshell of class-leading torsional rigidity, new Ritmo features a 20 mm wider track and larger tyres than its predecessor to maximise agility and promote outstanding stability under all conditions. Numerous revisions to both front and rear suspension systems – including modified geometry, re-tuning of springs and dampers, and a new front anti-roll bar – have been designed to minimise the transmission of noise and vibration, whilst further enhancing both cornering balance and ride comfort.

Front suspension

The new Ritmo's front suspension is an independent, MacPherson strut system, which delivers high levels of ride comfort and driving safety, along with exceptional grip and minimal roll.

Key elements to the revised set-up comprise:

- Oversized right-angled lower link geometry, which separates braking and cornering loads for optimum balance under all conditions.

- 'Dual-path' double front strut mounts to enhance structural rigidity, enhance steering precision and minimise road transmitted vibration.
- Pressed sheet metal twin-shell wishbones effecting a significant weight reduction
- A stiffened anti-roll bar with shock absorber anchorage rods for enhanced stability and greater responsiveness during cornering.
- A high rigidity crossbeam with a transverse linking strap close to the front link attachments.
- Rigid upper strut attachment to the bodyshell with increased caster angle, to enhance steering precision, minimise vibration and improve acoustics.
- Dual rate dampers with revised valve units to optimise vibration damping and enhance lateral rigidity for improved roadholding.
- New optimum thrust axis coil springs to minimise internal friction and improve minor road surface imperfection absorption.

Rear suspension

At the rear, the new Fiat Ritmo employs a lightweight, torsion beam axle configuration featuring new springs, dampers and bushing. To maximise ride comfort, driveability and handling performance, it benefits from the following features:

- A new, hollow, 40% stiffer anti-roll bar to improve handling precision and roadholding.
- Vertical damper mounting for minimal vibration with improved cabin acoustics.
- Hydraulic axle anchorage bushes, for enhanced longitudinal flexibility under load and greater responsiveness when cornering.

Dualdrive electric power steering

All Ritmo versions are equipped with this innovative, speed-sensitive power steering system, which comes with two operating modes and uses an electric motor, rather than a hydraulic pump driven by the engine, which results in a considerable reduction in fuel consumption and transmitted noise.

The system offers a choice of two settings: the first ensures maximum feedback and driver involvement, the second lightens the steering to minimise effort, and is therefore ideal for urban driving and low speed manoeuvring.

Pressing the 'City' button on the fascia activates the latter mode. But, to ensure maximum safety under all driving conditions, both settings offer identical power assistance over 19 mph, thus ensuring a steering wheel response suited to high speed driving.

The new Fiat Ritmo has a best-in-class turning circle of 10.4 metres between kerbs and 11.0 metres between walls.

Fiat Ritmo Technical Specifications

	Fiat Ritmo T-Jet Emotion/Sport	Fiat Ritmo Multijet Emotion/Sport
ENGINE	T-Jet 1.4 16V 110 kW	MJET 1.9 16V 110 KW
No. of cylinders, arrangement	4, in line, front, transverse	4, in line, front transverse
Bore x stroke (mm)	72.0 x 84.0	82.0 x 90.4
Capacity (cc)	1368	1910
Compression ratio	9.8:1	17.5:1
Max. power output EC: kW (bhp) at rpm	150 (110) @ 5500 rpm	110 (150) at 4000 rpm
Peak torque EC: Nm (kgm) at rpm	206 (152) @ 2250 rpm SPORT: 230 (170) @ 3000 rpm	305 (31) at 2000 rpm
Emissions compliance	Euro 4	Euro 4
Emissions control	three-way catalytic converter in engine compartment, 2 lambda probes, EOBD	2 oxidising catalysers (in engine bay and under body), electrical EGR valve, EOBD
Timing (drive)	DOHC with hydraulic tappets	2 OHC (toothed belt), hydraulic tappets (indirect roller drive)
Fuel system	timed, sequential electronic with fixed geometry turbocharger	direct injection, Common Rail Multijet with electronic control, variable geometry turbo and intercooler
TRANSMISSION		
Drive	front	front
Gearbox, no. of speeds	6 + Reverse	6 + Reverse
ELECTRICAL SYSTEM		
Battery: capacity (Ah)	60 Ah	60 Ah
STEERING		
Type	Rack and pinion with dualdrive electric power assistance	
Turning circle between kerbs (m)	10.4	10.4
BRAKES - D (disc) with ABS		
Front: Ø mm	D 284 x 26 mm	D 281 X 26 mm (ventilated)
Rear: Ø mm	D 251 x 10 mm	D 251 X 10 mm
SUSPENSION		
Front	independent MacPherson, dual rate telescopic dampers, anti-roll bar with spherical joint con rods	
Rear	interconnected wheels with torsion rear axle, telescopic dampers, anti-roll bar	
WHEELS		
	Emotion: Alloy 16 x 7J Sport: Alloy 17 x 7J	Emotion: Alloy 16 x 7J Sport: Alloy 17 x 7J
Tyres	Emotion: 205/55 R16 91V Sport: 225/45 R17 91V	Emotion: 205/55 R16 91V Sport: 225/45 R17 91V
DIMENSIONS		
Wheelbase (mm)	2600	2600
Front/rear track (mm)	1538/1532	1538/1532
Length/Width (mm)	4336/1792	4336/1792
Height empty (mm)	1498	1498
Luggage compartment capacity VDA (dm ³): with rear seat folded down	400 1175	400 1175
SUPPLIES - WEIGHTS		
Fuel tank (l)	58	58
Kerb weight DIN (kg)	1275	1360
Max. towable weight (kg)	1300	1300
PERFORMANCE - CONSUMPTION		
Top speed (km/h)	208	209
Acceleration (s): 0 - 100 km/h	8.5/8.2 with overboost	9.0
Consumption - EC Dir. 1999/100 (l/100 km)		
urban	9.3	7.6
out of town	5.8	4.5
combined	7.1	5.6
Combined CO ₂ emissions (g/km)	167	149

Fiat Ritmo Equipment Specifications

	<ul style="list-style-type: none"> • Fiat Ritmo Multijet Emotion • Fiat Ritmo T-Jet Emotion 	<ul style="list-style-type: none"> • Fiat Ritmo Multijet Sport • Fiat Ritmo T-Jet Sport
LINE AND STYLING		
Body-coloured bumpers	✓	✓
Body-coloured external door handles	NA	✓
Chrome-plated external door handles	✓	NA
Heated door mirrors with outdoor temperature sensors	✓	✓
Chrome inserts on waistline	✓	✓
Metallic paint	Opt	Opt
Pearlescent paint	Opt	Opt
Mica paint	Opt	Opt
17 inch 15 Spoke Sporty Design Alloy Wheels with 225/45 tyres	NA	✓
17 inch Emotion Design Alloy wheels with 205/55 tyres	✓	NA
Tinted windows	✓	✓
Rear spoiler	NA	✓
Sideskirts	NA	✓
Sports trim	NA	✓
Painted brake calipers	NA	✓
Chrome-plated exhaust tip	✓	✓
Leather upholstery	Opt	Opt
Leather-covered sporty steering wheel, gear lever and hand brake lever knobs	NA	✓
Leather steering wheel and gear lever knob	✓	NA
Sports instrument graphics	NA	✓
Sports pedals	NA	✓
Metallic black interior door handles	✓	NA
Chrome-plated interior door handles	NA	✓
Chrome-plated air vent trims	✓	✓
Chrome inserts on door armrest	✓	✓
Chrome-plated rings on instrument panels	✓	✓
Chrome-plated frames on interior door handle trims	✓	✓
Facia with carbon-look band	✓	✓
COMFORT/PRACTICALITY		
Fiat Code (electronic antitheft device)	✓	✓
Electric front windows with automatic function and anti-pinch device	✓	✓
Electric rear windows with anti-pinch system	✓	✓
Remote rear door opening/closing control	✓	✓
Electrical release of rear tailgate with 'logo-push' system	✓	✓
Follow me home light device	✓	✓
Front ceiling light with spotlight	✓	✓
Rear ceiling light	✓	✓
'Night Design' light effect on handles and ceiling light	✓	✓
Courtesy mirrors on sunshades	✓	✓
Illuminated mirror on passenger side sunshade	✓	✓
Illuminated luggage compartment	✓	✓
12 Volt socket in luggage compartment	✓	✓
Instrument panel with trip computer and my car system	✓	✓
Central console with glass holder	✓	✓
Front seat armrest with refrigerated locker	✓	✓
Height-adjustable driver's seat	✓	✓

Storage unit under passenger seat	✓	✓
Manual lumbar adjustment of driver's seat	✓	✓
Front seats with extra support and sports upholstery	NA	✓
Rear armrest	✓	✓
Squab-back pocket on front passenger seat	✓	✓
Split rear seat (3-seater) 60/40	✓	✓
Height adjustable front and rear head-restraints	✓	✓
Third height-adjustable rear head-restraint	✓	✓
Load restraint hooks in luggage compartment	✓	✓
AirCon, Automatic dual-zone climate system	NA	✓
AirCon	✓	NA
Rear air vents	✓	✓
Pollen filter	✓	✓
Dualdrive™ electric power steering	✓	✓
Sky Dome: electrically opening large glass sunroof	Opt	Opt
Sports pack (spoiler; sideskirts; chrome waistline trim; special pedals; lumbar adjustment of driver's seat; leather steering wheel, gear lever and handbrake knobs; sports upholstery; 17" alloys with 225/45 tyres)	NA	✓
SAFETY		
ABS + EBD (Electronic Brake Distribution)	✓	✓
Front airbags with dual stage Smart system	✓	✓
Front sidebags	✓	✓
Curtain-bags	✓	✓
Rear seat-belts with pre-tensioners	✓	✓
Front seat-belts with pre-tensioners, load limiters and fastening sensor	✓	✓
FPS (Fire Prevention System)	✓	✓
Child safety locks	✓	✓
ESP Electronic stability control + ASR/MSR, HBA and Hill Holder	✓	✓
Foglights with adaptive cornering function	✓	✓
AUDIO/TELEMATICS		
Radio with CD + MP3 player, HiFi 40 W audio system, 4 speakers + 2 tweeters (water resistant technology)	✓	✓
6-key radio controls on steering wheel	✓	✓
Blue&Me™: hands-free system with Bluetooth™ technology with steering wheel controls, instrument panel with multifunction display, MP3 audio file player from USB port and SMS text reader	NA	✓