2005 CBR600RR

Tail cowl and sidecovers combine for a sleeker look and lighter, more centralised weight. Narrower profile also contributes to easier handling under aggressive riding and racing conditions. Locking pillion pad with new centrally positioned lock opens to reveal compact carrying space for small-sized U-lock and other essentials.

Lighter weight 4-into-2-into-1 stainless steel Centre-Up exhaust system reaches under engine and up under seat cowl for unimpeded cornering clearance and a clean, aggressive look. Features built-in catalyser element for clean EURO-2 compliant emissions.

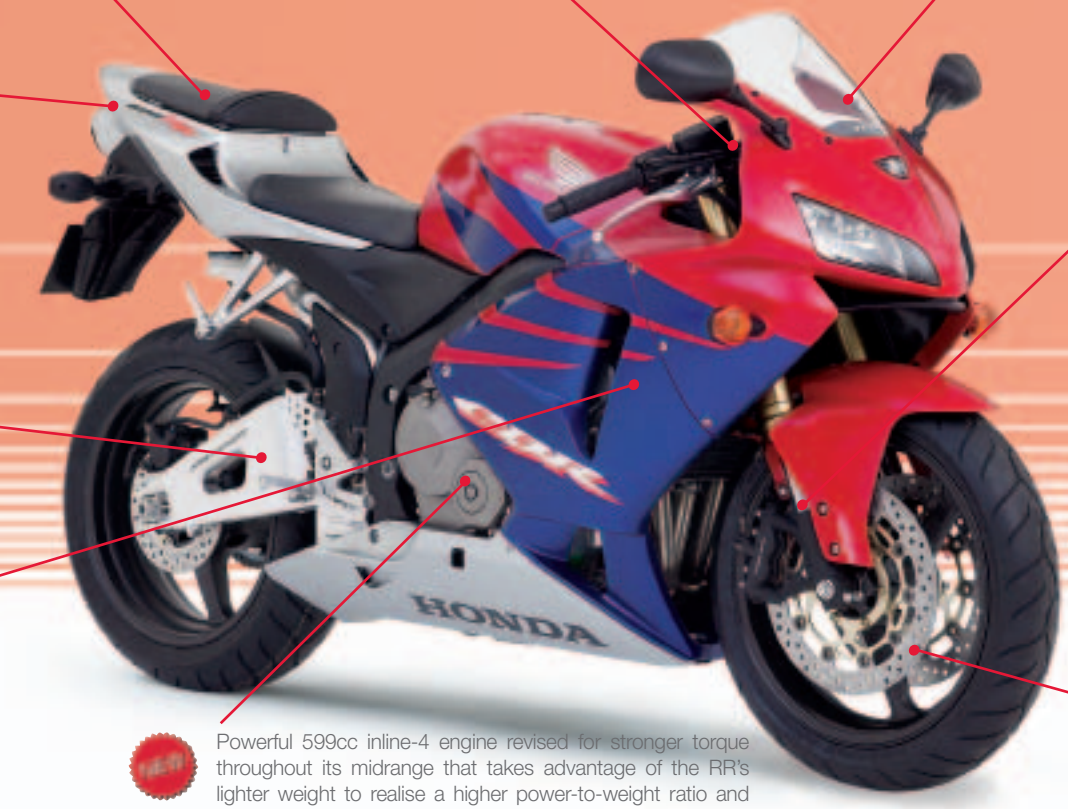
Lightweight and rigid Unit Pro-Link hybrid aluminium swingarm isolates frame and handling from rear suspension stresses. New swingarm now integrates the damper's upper mount into its new one-piece design for lighter weight.

Innovative hollow-section Fine Die-Cast aluminium frame features thinner wall castings for lighter weight while achieving an optimised balance of rigidity for exceptional handling on both street and track. Cast aluminium seat rail sections are also made lighter, contributing to the 600RR's stronger power-to-weight ratio.

Slim and compact, fully electronic instrument panel with adjustable shift indicator, large digital LCD speedometer, multi-segment fuel gauge, coolant temperature gauge, and blinking HISS warning light.

Revised front cowl now incorporates its ram air induction ports into the overall form, adapting the look of the CBR1000RR Fireblade. Above them, dual Line Beam multi-reflector headlights cast a brilliant pattern of night-time illumination from their slim, low-profile forms.

High-performance HMAS inverted cartridge-type front fork combines rigidity and reductions in unsprung weight for racetrack-ready handling and control along with adoption of radial-mount brake callipers.



Powerful 599cc inline-4 engine revised for stronger torque throughout its midrange that takes advantage of the RR's lighter weight to realise a higher power-to-weight ratio and sharper, faster acceleration.

Rigid, high-performance radial-mounted 4-piston brake callipers grip large-diameter 310mm floating rotors for braking control on par with many race machines.

Photo: ED type

2005
CBR600RR
PRESS INFORMATION

Introduction

In 2003, Honda opened a new chapter in the evolution of middleweight Super Sports motorcycle performance with the stunning debut of the new CBR600RR. A mid-sized sports bike designed first and foremost to reassert Honda's leadership at the most hotly contested levels of World Supersport competition, the CBR600RR also provides one of the most exciting blends of top performance and astounding riding ease to ever make a rider with a need for speed feel like a champion.

Recognisable at first glance, the CBR600RR's development team looked to none other than Honda's mighty RC211V MotoGP champion—the modern pinnacle of racing design achievement, and the dominant force in the world's premier class of motorcycle competition since its first debut—as the source for this new Supersport champion's advanced technological expertise. Inheriting a wealth of Honda Racing DNA technologies, from its innovative Dual Sequential Programmed Fuel Injection system to its Fine Die-Cast aluminium frame, Unit-Pro-Link swingarm and mass centralised fuel cell to the sleek lines of its aggressive bodywork, the CBR600RR impressively brought to the street many of the latest RC211V advances to be forged in the fires of the world's top class of motorcycle racing achievement.

Under the guiding development theme of 'Innovative Wonder,' the new CBR600RR was initially conceived of as a race-ready riding machine designed to provoke awe and excitement with every sensation felt while confidently exploring the outer limits of one's own performance envelope. Developed to achieve unrivalled levels of performance in the hands of those who can take full advantage of its riding and racing prowess, the CBR600RR is not only one of the lightest machines in its class, its centralised weight distribution helps it respond instantly to rider inputs with faster, smoother and more easily controlled handling. This leading combination of performance characteristics carried the CBR to World Supersport championship victory in only its first year in competition, and make it a thrilling and confidence-inspiring mount for those who simply love to ride… fast.

For its next generation, the CBR600RR builds upon this solid foundation of race-winning potential with a sharper and more aggressive new RC211V look and further advances in its design and construction. What little excess weight it may have had has been expertly trimmed in the quest for a class-leading power-to-weight ratio and the

sharpest, most responsive balance of middleweight performance to ever strafe a mountain road or dominate a racing podium. For 2005, the CBR600RR isn't merely faster, it is better in every way. The new CBR600RR will decisively reassert its pre-eminence as both the leader of the World Supersport circuit and top dog in the twisties for riders who can't get enough of the adrenaline-pumping thrill of riding at the edge. Whether in competition or in the process of extending your personal best, to feel like a champion, you really have to ride with one.

Development Concept

In developing a more intensely competitive second-generation follow-up to Honda's highest-performance middleweight Super Sports flagship, the CBR600RR's designers decided against pursuing dramatic increases in peak power output. Instead, they sought ways to make its already superb delivery of power and performance more responsive to rider and racer requirements in all applications, not just racing. They also set out to make that power more widely usable in all the riding situations that it might be called up to perform. Thus, the team focused on achieving all the benefits associated with a stronger power-to-weight ratio. This included, among other things, stronger acceleration and roll-on performance and swifter directional changes. Starting with a carefully detailed regimen of chassis weight reduction, the engine's performance curves were fine-tuned to take maximum advantage of the new machine's changes in handling characteristics.

General consensus held that the engine's current maximum power output and overrev characteristics made an exceptionally strong base for decisive conquest in World Supersport and other racing competition. Thus, the engine development team focused on detailed improvements to intake and exhaust flow in order to boost its midrange torque characteristics—and by extension, performance—with a stronger and smoother power delivery that extends throughout the engine's wide rev range. Besides providing stronger acceleration in racing and hard riding situations, this enhanced midrange torque output also offers the added advantage of making the new CBR more tractable and rider-friendly in day-to-day riding.

The majority of the CBR600RR's second-generation design work was focused on a detailed rethink of its chassis components. Maintaining the same basic configuration, these parts were lightened and optimised wherever possible in the quest for further enhanced—and more easily accessible— performance potential. From the manufacture of the CBR's Fine Die-Cast frame to its suspension and bodywork, and even electronic components, every facet of the CBR's construction was reviewed and revised with the goal of reducing weight and improving performance and handling.

The end result of these efforts trimmed away a total of nearly 5kg of weight. In keeping with Honda's fundamental Super Sports design concept of optimised mass centralisation, much of this weight loss was achieved at the outer extremes of the

CBR600RR's overall form. This impressive reduction not only results in a significant increase in the CBR's power-to-weight ratio, it also sees major gains in standing-start and roll-on acceleration, braking response and—because its weight is now even more closely concentrated around the bike's rolling axes—lighter and smoother handing. All are factors that play critical roles in the quest for lower laps times and consistent race-winning performance. These winning attributes also translate into stronger and more responsive performance on the streets and twisty roads that sportsbike riders love so well.

In keeping with the development team's determination to more closely approximate the remarkable RC211V in both the CBR's look and function, other significant design changes included the adaptation of a new inverted front fork and radial mount front brake callipers like those used on the RCV and the new CBR1000RR Fireblade. Design changes also focused on creating a more RCV-like look with a new nose and tail cowl design. These combine to achieve a more aggressive and competitive form that leaves no mistaking the CBR600RR's hereditary Racing DNA ties to Honda's unrivalled MotoGP champion. This stronger visual identification with the mighty RC211V further provides a vivid foretaste of the exciting performance potential that awaits for anyone with the right stuff to explore the outer limits of both the CBR600RR's and their own riding abilities.

Styling

Designed from its very inception to be nothing less than a high-performance, road-going replica of Honda's all-conquering RC211V MotoGP racer, the CBR600RR understandably inherited many of the styling cues that embody the RCV's mark of distinction. A good part of this design provides unmistakable evidence of aggressive Supersport form closely following function, with that function clearly focused on race-ready performance and handling. From its compact, sharply angular nose to its sleekly curved, upswept tail, the CBR600RR exudes the look of a champion. Small wonder then that the CBR600RR captured the 2003 World Supersport crown in only its first year in production and continues to dominate the middleweight class in its second year.

Refined Front Cowl

For its second generation, the new 2005 CBR600RR's sleek, race-bred fairing maintains its strong visual identification with Honda's premier MotoGP racing hero, the all-conquering RC211V. New ram air intake ducts are now more cleanly integrated into the aggressive lines of the bodywork, echoing design details seen in both the RCV and Honda's impressive new Superbike challenger, the CBR1000RR Fireblade.

Over the front wheel, a newly designed fender conforms to the shape and needs of the CBR's new inverted front fork, while under the aggressively shaped fuel tank cover, its centralised fuel cell features a new modified boss design for reduced weight.

Slim Line-Beam Headlights

Highlighting the fairing's aggressive form, the 600RR's distinctive, low-profile Line Beam headlights project a modern image in keeping with the CBR's racing roots. Less than half the height of the headlights seen on most road bikes, these ultra-sleek beams feature compact, high-illumination multi-reflector designs projecting through clear lenses to provide a brilliant night-time view of the road ahead.

New Tail Cowl and Sidecovers

The CBR's new, shorter tail cowl now combines with a new set of matte black sidecovers to provide a lighter and slimmer side profile that also enhances rider manoeuvring ease in the intensified attack of riding and racing competition. While initially appearing wider and more radically curved than the original cowl, this new design is actually a few millimetres narrower than the current model.

This combination of new tail cowl and sidecovers also weighs less than the one-piece unit they replace. Also, the tail cowl now features a new centrally positioned pillion pad lock located directly behind the rider's seat for easy access and lighter weight. Louvered intakes ports at the leading outer edges of the rear cowl provide a steady stream of cooling air to its internal area. Finally, a new one-piece resin silencer end shroud replaces the current rear fender stay (along with the aluminium pieces surrounding the end of the tailpipe) for a simpler design and reduced weight.

Hanging down from the seat rail, the CBR's new pillion step holders feature a new longer and lighter look while providing a relatively comfortable mount for the occasional passenger. Even the clip-on handlebar bosses and footpeg brackets have been made thinner and lighter to shave off weight wherever possible.

Colouring Concept

The new, second generation CBR600RR's distinctive race-ready style continues to maintain a strong visual link to the RC211V MotoGP racer on which its chassis and bodywork designs are intrinsically based. New colour variations for 2005 lead off with a new tricolor design that complements Honda's traditional racing red with shimmering metallic silver and rich pearlescent blue. The CBR takes on the look of mean urban streetfighter defiance in sultry black with contrasting silver stripes and a matte black undercowl. Finally, a brilliant candy blue like that first introduced on the CBR1100XX Super Blackbird highlights the CBR's impressive curves with a lustrous sheen.

All colour variations feature a rugged new clear-coating on the fuel tank cover that provides better, long-lasting protection against scratches and scuffing while ensuring a deep, luxurious shine of quality and distinction.

Colours

- Italian Red (with Pearl Heron Blue and Digital Silver Metallic)
- Black (with Digital Silver Metallic and Matte Gunpowder Black Metallic undercowl)
- Candy Phoenix Blue (with Matte Gunpowder Black Metallic undercowl)

Engine

The CBR600RR's high-powered 600cc inline-4 engine has proved itself to be a force to be reckoned with both on and off the circuit. Featuring a highly compact configuration that helps realise optimal mass centralisation and a longer swingarm—which combine to play a significant role in the CBR's exceptional handling—this engine delivers a broadly responsive range of power and blistering acceleration to leap out of corners and strafe the straights of the racing circuit.

Fundamentally unchanged for 2005, its innovative Dual Sequential Programmed Fuel Injection system (PGM-DSFI) continues to utilise two full sets of injectors to provide optimum fuel feed for top performance throughout the engine's wide rev range. With one set located at the mouths of the engine's intake ports, the other is positioned high above the air intake velocity stacks to deliver an extra shot of finely atomised fuel spray for optimised performance at high-revving engine speeds. Moreover, adoption of a new type of injectors attained improvements in response along with a small but significant 64g reduction in weight.

For its second generation, the CBR600RR's engine received detailed modifications designed to realise smoother and stronger, more torque-filled midrange performance, for a noticeable improvement in roll-on acceleration and overtaking speed. This was partially achieved by narrowing the middle section of the intake ports to greatly accentuate the venturi effect. This slight constriction effectively increases intake speed and air/fuel mixture volume to the combustion chambers for faster and more complete filling of the cylinders in the short interval that the intake valves remain open.

More air/fuel mixture in translates directly to stronger torque out, for quicker surges up to speed. Combined with the chassis' significant 5kg weight loss, this extra boost in midrange power output translates into a major increase in the CBR's power-to-weight ratio. The end result: quicker acceleration and faster lunges out of the corners in the heat of competition, and more satisfying response every time one twists the throttle.

Total EURO-2 Emissions Compliance

Besides delivering stronger, more useable power, the new 2005 CBR600RR also boasts cleaner emissions to ensure complete compliance with Europe's strict EURO-2 emissions regulations while maintaining the RR's class-leading performance. Versions

earmarked for the German market will also feature Honda's advanced HECS3 oxygen-sensing catalyser system built into a new, lighter weight exhaust header system.

Even with the addition of this new catalyser element, the aggregate weight of the new exhaust system and its under-seat silencer is still 1.4kg lighter than the system featured on the current 600RR. And this lighter system is not only responsible for a significant reduction in inertial weight, it also makes a major contribution to the machine's improved mass centralisation. Protruding from the CBR's tail, its integrated rear silencer end shrouds were changed in shape and reduced in the number of parts for lighter weight and a sleeker, simpler look.

Chassis

A dominating World Supersport champion and an exhilaratingly responsive corner-strafing performer, the CBR600RR is infused with RC211V-inspired Racing DNA that has sparked a modern revolution in the fundamental concepts of motorcycle handling and riding performance.

The heart of the CBR600RR's remarkable handling prowess lies primarily in the attention paid to centralising weight and mass around the machine's turning axes. The weight of heavier components—like engine, rider and fuel cell—is concentrated nearer these turning axes, where they exert less inertial resistance on banking and turning, and those components located further away from the centre of mass have been lightened wherever possible. This emphasis on mass centralisation results in lighter and more confidently responsive control that translates into quicker, more precise cornering and lower lap times at full racing speeds.

The CBR600RR's revolutionary Fine Die-Cast aluminium frame set the stage for new advances in chassis design with the ability to more freely and organically form its structural components. Its advanced manufacturing technique makes possible an optimal balance of rigidity, light weight and fine-tuned flexibility that allows the machine to settle more securely into turns and change lines with assured ease, whatever the riding conditions and rider's level of expertise.

A Lighter Frame

In developing the second generation of the CBR600RR, attention was focused on attaining reductions in overall weight, starting with the actual frame itself. Here the Fine Die-Casting shows its advantages by allowing section walls to be made thinner in areas where exposure to stress is less, and thickened where greater strength is desired. The overall effect on the frame's weight resulted in a reduction of 1.5kg, while its effect on handling is sublime. Weight reductions were also achieved in the redesign of the CBR's bolt-together die-cast seat rails, which are now 668g lighter compared to the current model.

New Inverted Front Fork

One of the most visible changes seen in the new second-generation CBR600RR is its impressive, new 41mm inverted front fork. This state-of-the-art system provides smoothly responsive performance and confident handling coupled with enhanced rigidity and a significant reduction in unsprung weight, as well as delivering the precision control that world-class racing demands.

The current CBR's standard configuration cartridge-type fork provides excellent performance for all riding and racing applications, as testified to by its domineering performance in the 2003 World Supersport series. However, frequent calls for an inverted fork from the riding press and public coupled with a desire to incorporate a new set of radial-mount front disk brakes like those used on both the RC211V and CBR1000RR Fireblade led to what on the surface appears to be a radical change in design philosophy.

Bearing a close resemblance in both look and performance characteristics to the inverted HMAS cartridge-type forks featured on the new CBR1000RR, the CBR600RR's massive new stanchions were fully optimised for top performance on this lighter and more compact model, and are also fully adjustable, allowing for precise tuning to virtually all combinations of rider and racetrack conditions.

New Unit Pro-Link Swingarm

Another critical chassis component to receive a lighter and simpler design is the CBR600RR's impressive Unit Pro-Link swingarm. The first production motorcycle to be mounted with this revolutionary self-contained system, the RR takes after Honda's MotoGP-dominating RC211V with a design that completely isolates the frame from the shocks and stresses generated by conventional rear suspension systems, especially under aggressive riding and racing conditions. This configuration also eliminates the need for the extra structural reinforcement—and its associated weight—which would otherwise be required to counteract these stresses. Likewise, the elimination of these conventional suspension and frame components frees up space to permit the lower, mid-chassis location of the fuel tank, thus making a large contribution to mass centralisation and its superior riding control.

The CBR's new composite aluminium swingarm now features a totally integrated upper damper mount, which replaces the current bolt-in unit and eliminates its

associated hardware. By integrating the upper mount into the swingarm's construction, this lighter and more compact new design greatly facilitates rear damper maintenance by making possible quicker and easier access, while having fewer parts to contend with.

Nestled in the swingarm in this simpler new design, the CBR's HMAS rear damper provides smoothly progressive control and assured handling. It also features a built-in remote gas reservoir and full preload and damping adjustment capability for top performance on both road and track.

Another difference in the new swingarm can be seen in the attachment of the rear axle adjuster blocks. No longer simply welded onto the ends of the swingarm spars, they are now more fully integrated into its form for a stronger and sharper looking design.

New Radial-Mount Front Brake Callipers

The CBR600RR's new inverted front fork configuration permits the use of new high-performance radial-mount brake callipers like those featured on both the CBR1000RR and the RC211V MotoGP champion.

These new callipers bolt straight down onto their distinctive turret-like mounts, which give the appearance of jutting directly outward from the front axle. These new callipers also feature a more rigid lateral 2-piece design held together by three horizontal bolts to provide both stronger grip and more even distribution of brake pressure across the entire surface area of the pads for highly efficient braking control with excellent feel at the lever.

The calliper's pistons feature an optimised surface plating preparation to ensure smooth operation coupled with greater resistance to corrosion, for more confidently responsive performance over the long haul. The same master cylinder and plumbing as currently installed is used to actuate these new callipers.

Equipment

Lightweight Instrument Panel

The CBR600RR's compact, fully electronic instrument panel is one of the slimmest and lightest ever mounted on a street bike. Positioned on either side of its large, central tachometer are a compact LCD display of fuel level and coolant temperature, and a large LCD readout of speed, dual trip and related warning indictors. Brilliant ISO-marked LED indicator lights are positioned around the perimeter of the panel. When the ignition key is switched on, the CBR600RR comes alive with an eye-catching startup routine that flashes the instrument panel's indicators and sweeps the tachometer needle.

Honda Ignition Security System (HISS)

Honda's effective HISS anti-theft system features a fail-safe electronic interlock that prevents the engine from being started with anything other than the motorcycle's two original keys. Totally disabling the engine at the very heart of its ignition system, the system cannot be bypassed by either hot-wiring the ignition or exchanging the ignition switch module, thus effectively deterring joyriders and greatly reducing the chance of ride-away theft.

New Hazard Lights

Located on the right-side handlebar switch pod, the new CBR600RR also features a convenient new hazard light flasher switch which flashes all four amber indicators for a brightly visible warning to approaching traffic.

Optional Equipment

The CBR600RR also features an extensive assortment of optional parts and equipment which has been specially designed by Honda Access Corporation to enhance all aspects of its road and track performance. These include:

• A 70% black-tinted windscreen which impressively accentuates the CBR600RR's sharp look of aggressive race-ready performance. Height is same as factory standard model. WVTA-approved.

• A motion-and vibration-sensitive alarm system that emits a piercing wail if tampering is detected.

• A colour-matched moulded plastic pillion pad cowl that snaps into place to accentuate the CBR600RR's purposefully competitive look.

• A specially made 3D carbon fibre print instrument panel cover, which fits over the plastic frame of the instrument panel to give the bike a more focused look of sharp, high-tech performance.

• A tailor-made 3D carbon fibre print top bridge cover, which completely covers the top surface of the upper triple-clamp to give the bike a more focused look of sharp, aggressive performance. Its carbon fibre pattern matches that featured on the optional instrument panel cover.

• A carbon fibre print tank pad and fuel lid cap cover that enhance protection. The carbon fibre pattern matches that featured on the optional instrument panel cover and top bridge cover.

• A luxurious indoor cycle cover, which features a racy silhouette of the CBR printed large in Honda Red for a strong visual impact while protecting the bike indoors.

• A U-lock designed to fit into the compact space located under the locking pillion pad.

• A tilting tubular steel rear maintenance stand that lifts the motorcycle by the end of its swingarm to facilitate cleaning and all rear wheel maintenance.

Optional HRC Racing Kit

For those with a strong interest in competing in amateur and world-class racing competition, Honda Racing Corporation (HRC) produces an extensive array of specialised racing parts for the CBR600RR. This complete racing kit includes engine, chassis, suspension and body parts designed for stronger power, lighter weight, sharper handling and better aerodynamics to further hone the RR's capabilities to a finely tuned competitive edge, and focus its performance potential on World Supersport racing competition and ultimate victory.

Specifications		CBR600RR (ED-type)
Engine		
Type		Liquid-cooled 4-stroke 16-valve DOHC inline-4
Displacement		599cm^3
Bore x Stroke		67 x 42.5mm
Compression Ratio		12 : 1
Max. Power Output		86kW/13,000min^{-1} (95/1/EC)
Max. Torque		66Nm/11,000min^{-1} (95/1/EC)
Idling Speed		1,300min^{-1}
Oil Capacity		3.5 litres
Fuel System		
Carburation		PGM-DSFI electronic fuel injection
Throttle Bore		40mm
Aircleaner		Dry, cartridge-type paper filter
Fuel Tank Capacity		18 litres (including 3.5-litre LCD-indicator reserve)
Electrical System		
Ignition System		Computer-controlled digital transistorised with electronic advance
Ignition Timing		Independent 4-cylinder 3D-mapped computer control
Sparkplug Type		IMR9C-9HES (NGK); VUH27D (ND)
Starter		Electric
Battery Capacity		12V/8.6AH
ACG Output		333W
Headlight		12V 55W x 1 (low) / 55W x 1 (high)
Drivetrain		
Clutch		Wet, multiplate with coil springs
Clutch Operation		Mechanical; cable-actuated
Transmission Type		6-speed
Primary Reduction		2.111 (76/36)
Gear Ratios	1	2.666 (32/12)
	2	1.937 (31/16)
	3	1.611 (29/18)
	4	1.409 (31/22)
	5	1.260 (29/23)
	6	1.666 (28/24)
Final Reduction		2.625 (42/16)
Final Drive		#525 O-ring sealed chain
Frame		
Type		Diamond; Fine Die-Cast aluminium

Chassis		
Dimensions	(LxWxH)	2,010 x 690 x 1,115mm
Wheelbase		1,395mm
Caster Angle		24°
Trail		95mm
Turning Radius		3.2m
Seat Height		820mm
Ground Clearance		130mm
Dry Weight		163kg
Kerb Weight		191kg (F: 99kg; R: 92kg)
Max. Carrying Capacity		180kg
Loaded Weight		371kg (F: 141kg; R: 230kg)
Suspension		
Type	Front	41mm fully adjustable inverted HMAS cartridge-type telescopic fork, 120mm axle travel
	Rear	Unit Pro-Link with gas-charged remote reservoir damper, adjustable spring preload and compression and rebound damping, 130mm axle travel
Wheels		
Type	Front	Hollow-section triple-spoke cast aluminium
	Rear	Hollow-section triple-spoke cast aluminium
Rim Size	Front	17M/C x MT3.50
	Rear	17M/C x MT5.50
Tyre Size	Front	120/70 ZR17M/C (58W)
	Rear	180/55 ZR17M/C (73W)
Tyre Pressure	Front	250kPa
	Rear	290kPa
Brakes		
Type	Front	310 x 4.5mm dual hydraulic disc with radial-mount 4-piston callipers, floating rotors and sintered metal pads
	Rear	220 x 5mm hydraulic disc with single-piston calliper and sintered metal pads

All specifications are provisional and subject to change without notice.