

HONDA

Press Information

FOR IMMEDIATE RELEASE

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2023 HONDA CRF450R



*Model updates: Honda's MX flagship evolves once more, thanks to lessons learned from fighting at the very front of a world-class pack. The 23YM has considerably more low-down torque and a smoother power delivery for the engine to promote corner-exit drive, while revised frame rigidity and suspension generate greater stability on braking, quicker turning, elevated front tyre grip and improved ability on rutted ground. It's a bike designed to make going faster, easier. As well as a new graphic treatment featuring a brand new redesign of the iconic HRC logos, for 23YM only, to mark 5 decades since the iconic CR250M Elsinore took to the track as Honda's first MX racer, a special **CRF450R 50th Anniversary model** will also be available, drawing its aesthetic inspiration from the legendary CRs of the 1980s.*

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1. Introduction

The Honda CRF450R has been *the* benchmark motocrosser since its introduction in 2002. Its package has always aimed to offer its rider – whether amateur enthusiast or pro-racer – total control through balance and agility. Plus, of course, it's built with the quality, durability and longevity that Honda has long been famed for.

And it's a race bike that has constantly evolved. In 17YM, under the concept of '*ABSOLUTE HOLESHOT!*', Europe's favourite open-class MX machine was given a ground-up redesign, with completely new chassis and a major top end power boost from a brand-new engine. Standard-fit electric start was a convenient addition in 18YM and, for 19YM, an HRC-developed cylinder head upped power and torque considerably; HRC launch control was also added. In 20YM the CRF450R gained Honda Selectable Torque Control (HSTC).

For 21YM, aside from the wheels and the fundamental engine architecture, the CRF450R was effectively a totally new bike, drawing heavily on developments from the 2019 MX GP championship winning CRF450RW of Tim Gajser. He and HRC secured the title for a second year in 2020 and finished a close third in 2021.

Detail refinements followed for the 22YM CRF450R but the game moves on constantly, and the 23YM machine jumps out of the gate with a host of factory rider and HRC-led updates (from Europe and America) to the engine and chassis aimed at making going fast, really fast, that much easier. For *all* riders, lap after lap.

And 23YM is a special year for Honda's off-road range – it marks 50 years since the arrival of the first 'straight out of the crate' MX racer, the CR250M Elsinore. To commemorate such an impressive milestone, while the standard CRF450R gets updated graphics and a new HRC logo there will also be a **CRF450R 50th Anniversary** limited edition, only available in 23YM, which pays stunning homage to the seminal bikes of the 1980s.

As always, the CRF450R remains to its core the HRC racer it *is* possible to buy.

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2. Model Overview

HRC rider feedback from the FIM World MXGP, AMA Supercross and Pro Motocross championships has steered the direction of CRF450R development. As a result, the 23YM machine is easier to ride faster, for longer.

Revised rigidity for the frame allows an increase in rear spring rate and damping, for improved control, without unwanted stiffness. Likewise, front tyre grip is heightened and the 23YM machine (compared to the 22YM) is more stable and turns faster with better suspension reaction and bump absorption.

Driving the new chassis harder through and out of corners, the engine now produces much greater low-rpm torque with increased, smoother low-down power delivery; new intake ports, a longer air funnel, smaller diameter throttle body and revised, factory rider-spec. cam timing are responsible. The rear muffler has also been made more durable.

New graphics feature new redesigned iconic HRC logos, representing the expansion of HRC's racing activities, while the 23YM CRF450R 50th Anniversary marks 50 years since the CR250M Elsinore took to the racetrack, starting Honda on its MX odyssey.

3. Key Features

3.1 Chassis

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- ***New frame rigidity balance improves stability and suspension action***
- ***The rear shock has an increased spring rate with damping to match for extra drive over ruts and increased traction***
- ***49mm Showa forks also features revised damping***
- ***Compact seat design and plastics aid rider freedom; new 23YM graphics feature a brand new HRC logo***
- ***Limited Edition 50th Anniversary Edition only available for 23YM***

The 23YM CRF450R pushes its handling ability further, as an evolution of the *Razor Sharp Cornering* banner that led the 21YM redesign; it's more stable on braking, turns faster and

exits corners more strongly.

Detail adjustments to frame rigidity allow the suspension – with revised settings – to work more efficiently. The front downtube/cradle joint now uses 6mm wall thickness (rather than 4mm) at its joint; likewise, the upper shock mount is now also constructed from 6mm wall thickness (also up from 4mm). Steel cylinder head hangers replace the aluminium parts used by the 22YM machine; balanced to work with the frame's new rigidity setting, front tyre traction is greatly improved.

Also, to match the frame 'tune', a new spring rate for the Showa rear shock – 56N/mm from 54N/mm – with revised damping, gains drive, especially in rutted conditions *without* a stiffer feeling. There are 11 adjustment positions for rebound and 6 for high and low-speed compression. Oil volume is 421cc. The aluminium swingarm is 585.2mm long and works the shock through Pro-Link.

The Showa 49mm USD coil spring fork is based on the 'factory' unit supplied to MX race teams in the Japanese championship. It employs a 310mm stroke with 387cc oil volume and 13 adjustment positions for rebound, 15 for compression; damping settings have been revised for an optimum front/rear balance.

Rake and trail are set at 27°7'/113.9mm with 1481mm wheelbase and 336mm ground clearance. Dry weight is 105.8kg with a 49/51% front/rear balance.

Standard-fit, lightweight Renthal Fatbar flex for optimal comfort; the top yoke features two handlebar-holder locations for moving the handlebar rearward and forward by 26mm. When the holder is turned 180°, the handlebar can be moved an additional 10mm from the base position, resulting in four unique riding positions.

Up front, the twin-piston brake caliper employs 30 and 27mm diameter pistons and 260mm wave-pattern disc; along with low-expansion rate brake hose it gives both a strong feel and consistent staying power. The single-piston rear caliper is matched to a 240mm wave-pattern disc.

DID aluminium rims, with directly attached spoke pattern layout are finished in black; the front is a 21 x 1.6in, the rear a 19 x 2.15in. The rear wheel was made both stronger and lighter for 21YM and Dunlop's MX33F/MX33 soft-terrain tyres are fitted as standard equipment.

Minimal bodywork aids rider movement around the machine; maintenance is easy with only four 8mm bolts securing the plastics each side. Designed with Computational Flow Dynamics (CFD) for maximum through-flow of air, the one-piece radiator shrouds include a lower vent, with the radiator grills optimised for airflow. The titanium fuel tank holds 6.3L.

For 23YM, complementing its aggressive lines, CRF450R features a striking all-new graphic treatment which includes the new redesigned iconic HRC logos, now italic, which has been introduced as HRC's activities expand into 4W racing.

23YM CRF450R 50th Anniversary

2023 will mark 50 years since the Honda's first ever production MX racer – the CR250M Elsinore – took to the track in Japan. In celebration of this milestone Honda is making available a very special, limited edition CRF450R 50th Anniversary, for 23YM only. Drawing inspiration from the HRC machines of the 1980s, it's a visually stunning statement of pure racing intent and history. Key differences over the 'stock' machine are:

- Blue seat cover
- White number board on the rear side covers, plus white front number board
- Unique radiator shroud graphics
- Gold wheels and handlebar
- Metallic Grey top and bottom yokes
- Honda Wing logo on front mudguard

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3.2 Engine

- ***7% more torque @ 5,000rpm and extra, smoother power available at low rpm***
- ***Narrower intake port shape, longer air funnel, 44mm throttle body, new valve timing and revised ECU settings create the change in output***
- ***Rear muffler now made of tougher aluminium, with no weight penalty***

Much stronger low-range punch is the development direction of the 23YM 449.7cc four-

valve Unicam engine – to make getting *out* of a corner much quicker and easier. Maximum torque remains exactly as before, but at 5,000rpm there's an extra 10.7% to make use of higher gears reducing fatigue over the duration of a race. The engine also starts making more power in the lower rpm range, with a 5% reduction at absolute peak.

To generate the stronger bottom-end torque the air funnel (a part drawn directly from the CRF450RW HRC race machine) is longer, and intake port shape narrower, increasing gas flow. Likewise, another HRC-developed part now found on the customer machine is a 44mm throttle body, 2mm smaller in diameter and smoothing power delivery low-down. New valve springs and valve timing are direct result of feedback from HRC's factory riders and the spec. they themselves use.

The exhaust muffler is now constructed from heat-treated aluminium to better stand up to the rider's boot. Testing to prove its ability to resist distortion took place with impact from a 2.2kg weight travelling from 600mm away; after 5 strikes there was very little deformation compared to the 22YM design. Importantly, the material itself (and heat treatment) ensure zero weight gain.

Bore and stroke is set at 96 x 62.1mm with compression ratio of 13.5:1. A gear position sensor allows the use of three specific ignition maps for 1st and 2nd, 3rd and 4th, and 5th. An 8-plate hydraulic clutch gives outstanding control and feel at the lever as well as delivering consistent lever clearance under arduous riding conditions. It also reduces slippage at peak output.

Rock-solid reliability has always been a big factor in the CRF450R's success and a 5-hole piston oil jet and dual 12mm drum scavenge pump manage all-important lubrication.

3.3 Electronics

- ***Honda Selectable Torque Control (HSTC) with 3 riding modes (plus OFF)***
- ***HRC Launch Control offers 3 start options***
- ***Engine Mode Select Button (EMSB) features 3 maps to adjust output character***
- ***HRC Setting tool tailors Aggressive and Smooth modes***

The CRF450R's HSTC works to minimise rear wheel spin (thus reducing wasted forward drive) and maximise traction. It doesn't use a wheel speed sensor, and critically maintains feel at the throttle while managing power; ignition timing is retarded and the PGM-FI controlled when the *rate* of change of rpm is detected to have gone over a set amount.

The three Modes differ in drive management level for different riding conditions:

Mode 1 intervenes most lightly, and after the longest time – useful for reducing wheelspin and maintaining control in tight corners.

Mode 3 has the system intervene more quickly and strongly, and is therefore useful in more slippery, muddy conditions.

Mode 2 naturally offers a mid-point between 1 and 3 in terms of speed and strength of intervention.

The Launch Control indicator, EFI warning, HSTC and EMSB mode button, and LED indicator are sited on the left handlebar. Pressing and holding the HSTC button for 0.5s will cycle the system to the next mode, with a green LED indication – 1 blink for Mode 1, 2 for Mode 2 and 3 for Mode 3 – to confirm selection.

The HSTC system can also be switched off completely. When the engine is turned on, the system uses the last-selected setting.

HRC Launch Control gives any rider the best option for a strong start and also has 3 modes to choose from:

Level 3 – 8,250rpm, muddy conditions/novice.

Level 2 – 8,500rpm, dry conditions/standard.

Level 1 – 9,500rpm, dry conditions/expert.

Activating HRC Launch Control is easy: to turn on, pull in the clutch and push the Start button on the right. The purple LED will blink once for Level 1 selection. Push the Start button again, for 0.5s or longer, and the LED will blink twice for Level 2. Repeat the process and the LED will blink 3 times, indicating that Level 3 has been chosen.

The Engine Mode Select Button (EMSB) alters the engine's character and three maps are available to suit riding conditions or rider preference:

Mode 1 – Standard.

Mode 2 – Smooth.

Mode 3 – Aggressive.

The LED also displays mode selected, but with a blue light.

The HRC Setting Tool can deliver an ECU map with a much more ‘easy-going’ Smooth mode, with gentler throttle response for less experienced riders. It can also inject Aggressive mode with an ultra-sensitive throttle reaction and engine response for race conditions.

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4. Technical Specifications

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ENGINE	
Type	Liquid-cooled 4-stroke single cylinder uni-cam
Displacement	449.7cc
Bore ´ Stroke	96.0mm x 62.1mm
Compression Ratio	13.5:1
FUEL SYSTEM	
Carburation	Fuel injection
Fuel Tank Capacity	6.3L
ELECTRICAL SYSTEM	
Starter	Electric
DRIVETRAIN	
Clutch Type	Wet type multi-plate
Transmission Type	Constant mesh, 5-speed,manual
Final Drive	Chain
FRAME	

Type	Aluminium twin tube
CHASSIS	
Dimensions (L`W`H)	2,182 x 827 x 1,267mm
Wheelbase	1,481mm
Caster Angle	27.7°
Trail	113.9mm
Seat Height	965mm
Ground Clearance	336mm
Weight	Dry 105.8kg – wet 110.6kg
SUSPENSION	
Type Front	Showa 49mm USD fork
Type Rear	Showa monoshock using Honda Pro-Link
WHEELS	
Type Front	Aluminium, spoke
Type Rear	Aluminium, spoke
Tyres Front	80/100-21-51M Dunlop MX33F
Tyres Rear	120/80-19-63M Dunlop MX33
BRAKES	
Front	Single 260mm disc
Rear	Single 240mm disc
ADDITIONAL FEATURES	
Electronics	HRC Launch Control HSTC

All specifications are provisional and subject to change without notice

Please note that the figures provided are results obtained by Honda under standardised testing conditions prescribed by WMTA. Tests are conducted on a rolling road using a standard version of the vehicle with only one rider and no additional optional equipment.

Actual fuel consumption may vary depending on how you ride, how you maintain your vehicle, weather, road conditions, tire pressure, installation of accessories, cargo, rider and passenger weight, and other factors.

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