

DIN EN ISO 4210-2:2023-05 (E)

Cycles - Safety requirements for bicycles - Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles (ISO 4210-2:2023)

| Contents | | Page |
|--------------------------------|--|-------------|
| European foreword | | 4 |
| Foreword | | 5 |
| Introduction | | 7 |
| 1 Scope | | 8 |
| 2 Normative references | | 8 |
| 3 Terms and definitions | | 9 |
| 4 Requirements | | 9 |
| 4.1 | Toxicity | 9 |
| 4.2 | Sharp edges | 9 |
| 4.3 | Security and strength of safety-related fasteners..... | 9 |
| 4.3.1 | Security of screws..... | 9 |
| 4.3.2 | Minimum failure torque | 9 |
| 4.3.3 | Folding bicycle mechanism..... | 9 |
| 4.4 | Crack detection methods..... | 10 |
| 4.5 | Exposed protrusions..... | 10 |
| 4.6 | Brakes..... | 10 |
| 4.6.1 | Braking systems..... | 10 |
| 4.6.2 | Hand-operated brakes..... | 10 |
| 4.6.3 | Attachment of brake assembly and cable requirements..... | 11 |
| 4.6.4 | Brake-block and brake-pad assemblies — Security test..... | 12 |
| 4.6.5 | Brake adjustment..... | 12 |
| 4.6.6 | Hand-operated braking-system — Strength test..... | 12 |
| 4.6.7 | Back-pedal braking system — Strength test..... | 12 |
| 4.6.8 | Braking performance..... | 12 |
| 4.6.9 | Brakes — Heat-resistance test..... | 15 |
| 4.7 | Steering..... | 15 |
| 4.7.1 | Handlebar — Dimensions | 15 |
| 4.7.2 | Handlebar grips and plugs..... | 16 |
| 4.7.3 | Handlebar stem — Insertion-depth mark or positive stop..... | 16 |
| 4.7.4 | Handlebar stem to fork steerer — Clamping requirements..... | 17 |
| 4.7.5 | Steering stability..... | 17 |
| 4.7.6 | Steering assembly — Static strength and security tests | 18 |
| 4.7.7 | Handlebar and stem assembly — Fatigue test | 19 |
| 4.8 | Frames..... | 19 |
| 4.8.1 | Suspension-frames — Special requirements..... | 19 |
| 4.8.2 | Frame — Impact test (falling mass)..... | 20 |
| 4.8.3 | Frame and front fork assembly — Impact test (falling frame)..... | 20 |
| 4.8.4 | Frame — Fatigue test with pedalling forces..... | 20 |
| 4.8.5 | Frame — Fatigue test with horizontal forces..... | 20 |
| 4.8.6 | Frame — Fatigue test with a vertical force..... | 20 |
| 4.8.7 | Rear brake mount tests..... | 21 |
| 4.9 | Front fork..... | 21 |
| 4.9.1 | General..... | 21 |
| 4.9.2 | Means of location of the axle and wheel retention | 21 |
| 4.9.3 | Tyre clearance test — Suspension fork..... | 21 |
| 4.9.4 | Front fork — Tensile test..... | 21 |
| 4.9.5 | Front fork — Static bending test..... | 21 |

| | | |
|----------|--|-----------|
| 4.9.6 | Front fork — Rearward impact test..... | 21 |
| 4.9.7 | Front fork — Bending fatigue test plus rearward impact test..... | 22 |
| 4.9.8 | Forks intended for use with hub- or disc-brakes..... | 22 |
| 4.9.9 | Steerer tube — fatigue test..... | 22 |
| 4.10 | Wheels and tyre assembly..... | 23 |
| 4.10.1 | Wheels and tyre assembly — Rotational accuracy — Concentricity tolerance and lateral tolerance..... | 23 |
| 4.10.2 | Wheel and tyre assembly — Clearance..... | 23 |
| 4.10.3 | Wheel and tyre assembly — Static strength test..... | 23 |
| 4.10.4 | Wheels — Wheel retention..... | 23 |
| 4.10.5 | Wheels — Quick-release devices — Operating features..... | 24 |
| 4.10.6 | Wheel and tyre assembly — Greenhouse effect test for composite wheels..... | 24 |
| 4.10.7 | Wheel and tyre assembly — Heat resistance tests for composite rims used in conjunction with rim brake..... | 25 |
| 4.10.8 | Wheel and tyre assembly — Overpressure test..... | 25 |
| 4.10.9 | Wheel and tyre assembly — Information for users..... | 26 |
| 4.11 | Front mudguard..... | 26 |
| 4.12 | Pedals and pedal/crank drive system..... | 26 |
| 4.12.1 | Pedal tread..... | 26 |
| 4.12.2 | Pedal clearance..... | 27 |
| 4.12.3 | Pedal — Static strength test..... | 28 |
| 4.12.4 | Pedal — Impact test..... | 28 |
| 4.12.5 | Pedal — Dynamic durability test..... | 28 |
| 4.12.6 | Drive system — Static strength test..... | 28 |
| 4.12.7 | Crank assembly — Fatigue test..... | 29 |
| 4.13 | Drive-chain and drive belt..... | 29 |
| 4.13.1 | Drive-chain..... | 29 |
| 4.13.2 | Drive belt..... | 29 |
| 4.14 | Chain-wheel and belt-drive protective device..... | 29 |
| 4.14.1 | Requirements..... | 29 |
| 4.14.2 | Chain-wheel disc and drive pulley disc diameter..... | 30 |
| 4.14.3 | Chain and drive belt protective device..... | 31 |
| 4.14.4 | Combined front gear-change guide..... | 32 |
| 4.15 | Saddles and seat-posts..... | 32 |
| 4.15.1 | Limiting dimensions..... | 32 |
| 4.15.2 | Seat-post — Insertion-depth mark or positive stop..... | 32 |
| 4.15.3 | Saddle/seat-post — Security test..... | 33 |
| 4.15.4 | Saddle and saddle rail — Static strength test..... | 33 |
| 4.15.5 | Saddle and seat-post assembly — Fatigue test..... | 33 |
| 4.15.6 | Seat-post — Fatigue test..... | 33 |
| 4.16 | Spoke protector..... | 34 |
| 4.17 | Luggage carriers..... | 34 |
| 4.18 | Road test of a fully assembled bicycle..... | 34 |
| 4.19 | Lighting systems and reflectors..... | 34 |
| 4.19.1 | General..... | 34 |
| 4.19.2 | Wiring harness..... | 34 |
| 4.19.3 | Lighting systems..... | 35 |
| 4.19.4 | Reflectors..... | 35 |
| 4.20 | Warning device..... | 35 |
| 5 | Manufacturer's instructions..... | 35 |
| 6 | Marking..... | 37 |
| 6.1 | Requirement..... | 37 |
| 6.2 | Durability test..... | 38 |
| | Annex A (informative) Steering geometry..... | 39 |
| | Bibliography..... | 40 |