

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