

ISO 4210-2:2023-01 (E)

Cycles - Safety requirements for bicycles - Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles

	Contents	Page
Foreword	v	
Introduction	vii	
1 Scope	1	
2 Normative references	1	
3 Terms and definitions	2	
4 Requirements	2	
4.1 Toxicity	2	
4.2 Sharp edges	2	
4.3 Security and strength of safety-related fasteners	2	
4.3.1 Security of screws	2	
4.3.2 Minimum failure torque	2	
4.3.3 Folding bicycle mechanism	2	
4.4 Crack detection methods	3	
4.5 Exposed protrusions	3	
4.6 Brakes	3	
4.6.1 Braking systems	3	
4.6.2 Hand-operated brakes	3	
4.6.3 Attachment of brake assembly and cable requirements	4	
4.6.4 Brake-block and brake-pad assemblies -- Security test	5	
4.6.5 Brake adjustment	5	
4.6.6 Hand-operated braking-system -- Strength test	5	
4.6.7 Back-pedal braking system -- Strength test	5	
4.6.8 Braking performance	5	
4.6.9 Brakes -- Heat-resistance test	8	
4.7 Steering	8	
4.7.1 Handlebar -- Dimensions	8	
4.7.2 Handlebar grips and plugs	9	
4.7.3 Handlebar stem -- Insertion-depth mark or positive stop	9	
4.7.4 Handlebar stem to fork steerer -- Clamping requirements	10	
4.7.5 Steering stability	10	
4.7.6 Steering assembly -- Static strength and security tests	11	
4.7.7 Handlebar and stem assembly -- Fatigue test	12	
4.8 Frames	12	
4.8.1 Suspension-frames -- Special requirements	12	
4.8.2 Frame -- Impact test (falling mass)	13	
4.8.3 Frame and front fork assembly -- Impact test (falling frame)	13	
4.8.4 Frame -- Fatigue test with pedalling forces	13	
4.8.5 Frame -- Fatigue test with horizontal forces	13	
4.8.6 Frame -- Fatigue test with a vertical force	13	
4.8.7 Rear brake mount tests	14	
4.9 Front fork	14	
4.9.1 General	14	
4.9.2 Means of location of the axle and wheel retention	14	
4.9.3 Tyre clearance test -- Suspension fork	14	
4.9.4 Front fork -- Tensile test	14	
4.9.5 Front fork -- Static bending test	14	

4.9.6	Front fork -- Rearward impact test	14
4.9.7	Front fork -- Bending fatigue test plus rearward impact test	15
4.9.8	Forks intended for use with hub- or disc-brakes	15
4.9.9	Steerer tube -- fatigue test	15
4.10	Wheels and tyre assembly	16
4.10.1	Wheels and tyre assembly -- Rotational accuracy -- Concentricity tolerance and lateral tolerance	16
4.10.2	Wheel and tyre assembly -- Clearance	16
4.10.3	Wheel and tyre assembly -- Static strength test	16
4.10.4	Wheels -- Wheel retention	16
4.10.5	Wheels -- Quick-release devices -- Operating features	17
4.10.6	Wheel and tyre assembly -- Greenhouse effect test for composite wheels	17
4.10.7	Wheel and tyre assembly -- Heat resistance tests for composite rims used in conjunction with rim brake	18
4.10.8	Wheel and tyre assembly -- Overpressure test	18
4.10.9	Wheel and tyre assembly --Information for users	19
4.11	Front mudguard	19
4.12	Pedals and pedal/crank drive system	19
4.12.1	Pedal tread	19
4.12.2	Pedal clearance	20
4.12.3	Pedal -- Static strength test	21
4.12.4	Pedal -- Impact test	21
4.12.5	Pedal -- Dynamic durability test	21
4.12.6	Drive system -- Static strength test	21
4.12.7	Crank assembly -- Fatigue test	22
4.13	Drive-chain and drive belt	22
4.13.1	Drive-chain	22
4.13.2	Drive belt	22
4.14	Chain-wheel and belt-drive protective device	22
4.14.1	Requirements	22
4.14.2	Chain-wheel disc and drive pulley disc diameter	23
4.14.3	Chain and drive belt protective device	24
4.14.4	Combined front gear-change guide	25
4.15	Saddles and seat-posts	25
4.15.1	Limiting dimensions	25
4.15.2	Seat-post -- Insertion-depth mark or positive stop	25
4.15.3	Saddle/seat-post -- Security test	26
4.15.4	Saddle and saddle rail -- Static strength test	26
4.15.5	Saddle and seat-post assembly -- Fatigue test	26
4.15.6	Seat-post -- Fatigue test	26
4.16	Spoke protector	27
4.17	Luggage carriers	27
4.18	Road test of a fully assembled bicycle	27
4.19	Lighting systems and reflectors	27
4.19.1	General	27
4.19.2	Wiring harness	27
4.19.3	Lighting systems	28
4.19.4	Reflectors	28
4.20	Warning device	28
5	Manufacturer's instructions	28
6	Marking	30
6.1	Requirement	30
6.2	Durability test	31
	Annex A (informative) Steering geometry	32
	Bibliography	33