

DIN 79010:2020-02 (E)

Cycles - Transportation bikes and cargo bikes - Requirements and test methods for single- and multi-track cycles

Contents	Page
Foreword	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions.....	8
4 Classification.....	10
5 Requirements.....	10
5.1 Accuracy tolerances of the test conditions	10
5.2 Design of the surface	10
5.2.1 Requirement.....	10
5.2.2 Test method	11
5.3 Securing and strength of safety-relevant fasteners	11
5.3.1 General	11
5.3.2 Maximum tightening torque.....	12
5.3.3 Mechanism for folding cycles	12
5.4 Position of the payload.....	12
5.5 Brakes.....	12
5.5.1 Requirement.....	12
5.5.2 Tests	15
5.6 Tipping stability of multi-track cargo bikes (type 2).....	20
5.6.1 Static tipping stability of multi-track cargo bikes	20
5.6.2 Dynamic tipping stability of multi-track cargo bikes (type 2)	20
5.7 Parking and longitudinal stability	21
5.7.1 Requirement.....	21
5.7.2 Type 1 test method	21
5.8 Steering.....	24
5.8.1 Requirement.....	24
5.8.2 Steering unit — Static strength and fastening tests	26
5.8.3 Dynamic steering test	31
5.8.4 Handlebar/stem unit — Dynamic test.....	31
5.9 Frame	34
5.9.1 Suspension frames — Special requirements.....	34
5.9.2 Requirements for all frame types	35
5.9.3 Frame – Dynamic test with pedalling forces.....	35
5.9.4 Frame – Dynamic test with horizontal forces	36
5.9.5 Frame — Dynamic test with a vertical force onto the seat pillar.....	38
5.9.6 Frame — Dynamic test with vertical forces onto the loading point.....	39
5.9.7 Frame – Dynamic test with lateral forces	40
5.10 Front wheel fork	43
5.10.1 General.....	43
5.10.2 Installation of the axle and wheel fastening.....	43
5.10.3 Front wheel fork — Static bending test.....	43
5.10.4 Front wheel forks — Dynamic bending test and impact test backwards.....	44
5.10.5 Front forks for use with hub or disc brakes.....	48

5.11	Wheel and wheel/tyre unit — Dynamic test for cargo bikes	49
5.11.1	Requirement	49
5.11.2	Test method	49
5.12	Mudguards/wheel cover	51
5.12.1	Requirement	51
5.12.2	Test method	51
5.13	Pedals and pedal/crank drive system	51
5.13.1	Requirement	51
5.13.2	Test method	51
5.14	Drive chain and drive belt	51
5.14.1	Requirement	51
5.14.2	Test method	51
5.15	Electric drive	51
5.15.1	Requirement	51
5.15.2	Test method	52
5.16	Guard for chain-wheel set and belt drive	52
5.16.1	Requirement	52
5.16.2	Test method	52
5.17	Saddles/seats and seat pillars	52
5.17.1	Saddles and seat pillars	52
5.17.2	Seats	54
5.18	Spoke protector (protection against contact)	57
5.18.1	Access zone for transportation bikes and cargo bikes	57
5.18.2	Hazardous edges and projections	57
5.18.3	Shear and squeeze points	57
5.18.4	Indirect contact with the wheels	58
5.18.5	Method for foot protector and foot attachment	58
5.19	Requirement for loading points/load securing	60
5.20	Passenger transportation (children) up to 7 years of age	60
5.20.1	General requirements	60
5.20.2	Access zone	60
5.20.3	Chemical properties (migration of certain elements)	60
5.20.4	Flammability	60
5.20.5	Front guard	61
5.20.6	Entrapment	61
5.20.7	Small parts for the child transportation device	61
5.20.8	Folding mechanism	61
5.20.9	Strength of the restraint system	61
5.20.10	Rigidity of the passenger cab of cargo bikes intended for transporting children	61
5.21	Passenger transportation for passengers over 7 years of age	61
5.21.1	General	61
5.21.2	Risks due to moving parts	61
5.22	Lighting systems	61
5.23	Warning device	61
5.24	Rear-view mirror	62
5.25	Ergonomics and design of the work equipment	62
5.26	Overall vehicle test for cargo bikes with unchangeable loading points and special vehicles ..	62
5.26.1	General	62
5.26.2	Requirements	62
5.26.3	Verification methods	62
6	Marking	63
7	User instructions	64
Annex A	(normative) Test bodies	67
Annex B	(informative) Calculation of the centre of gravity of cycles or cargo bikes	69
B.1	Experimental determination of the centre of gravity	69

B.1.1	General	69
B.1.2	Measurement and calculation results (example 1).....	73
B.1.3	Centre of gravity determination on multi-track vehicles or cargo bikes.....	75
B.2	Calculation of the centre of gravity.....	77
Annex C (normative)	Front fork mounting device	79
Annex D (normative)	Testing vehicles on a test bench.....	80
D.1	Requirements	80
D.2	Test apparatus	80
D.3	Test method	80
Annex E (informative)	Properties of the dummy forks	84
Annex F (normative)	Construction regulation for a “Belgian Block” test track.....	86
F.1	Roadway width.....	86
F.2	Surface	86
F.3	Durability.....	86
F.4	Dimensions of the blocks.....	86
F.5	Material of the blocks	86
F.6	Subsurface	86
F.7	Paving.....	86
F.8	Gaps between blocks.....	87
F.9	Edge strips and ramps	87
F.10	Roadway camber	87
Bibliography		88