

## CLARIFICATION GUIDE OF THE UCI TECHNICAL REGULATION

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As the summit organisation of world cycle sport, the International Cycling Union (UCI) is the guarantor of the proper application of ethical and sporting regulations.

The UCI Regulations assert the primacy of man over machine. Observance of the regulations by all parties involved facilitates sporting fairness and safety during competition.

This document does not replace Articles 1.3.001 to 1.3.034 of the UCI Regulations, but rather complements them and illustrates the technical rules defined therein. The objective of this document is to offer a definitive interpretation in order to facilitate understanding and application of the Regulations by international commissaires, teams and manufacturers.

This practical guide applies to equipment used in road, track and cyclo-cross events. Each discipline has its own technical characteristics and each may have variants depending on the type of event.

The UCI Equipment Unit may be contacted by anyone seeking information on the technical regulations. The technical regulations can be consulted on the UCI website under the "Rules" heading. Further details on the approval procedures for frames, forks and wheels are also available on the UCI website under the "Equipment" heading.

### **ARTICLE 1.3.001**

*"Each licence holder shall ensure that his equipment (bicycle with accessories and other devices fitted, headgear, clothing, etc.) does not, by virtue of its quality, materials or design, constitute any danger to himself or to others."*

The licence holder is responsible for his or her equipment and for ensuring its compliance with the regulations. The licence holder must thus have knowledge of the technical regulations to be able to apply them to the bicycle, accessories and clothing. The objective of the approval procedures put in place by the UCI is to assist licence holders in this task.

The bicycle must be designed and constructed to the highest professional standards in accordance with official quality and safety standards in a manner that respects the UCI's technical regulations, allowing the rider to adopt, without difficulty or risk, the required positions (support points, withdrawn saddle position, hands on the handlebars, position of handlebar extensions, etc.).

### **ARTICLE 1.3.001 BIS**

*"Each licence holder shall ensure that the equipment he uses on the occasion of road, track or cyclo-cross events shall be approved by the UCI according to the specifications of the Approval Protocols in force and available on the UCI Website."*

The UCI is in the process of implementing approval procedures for all cycling equipment in order to assist licence holders in the proper application of the regulations. Licence holders can consult a list of approved models on the UCI website under the "Equipment" heading. For any item of equipment that is subject to an approval procedure to be used in competition, it must be approved in advance by the UCI with details published on the website.

## ARTICLE 1.3.002

*"The UCI shall not be liable for any consequences deriving from the choice of the equipment used by licence holders, nor for any defects it may have or its non-compliance. Equipment used must meet applicable official quality and safety standards."*

It is essential that the equipment used in competition meets the prevailing quality and safety standards for bicycles. Mechanics and riders should also be aware of the EN14781 European Standard on safety that applies to cycling equipment. They should refer to this Standard before modifying or adjusting any bicycle component.

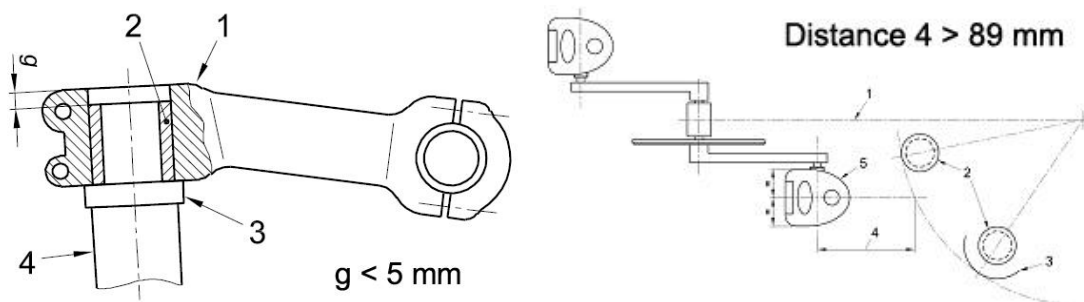


Figure 1: Two examples of instructions defined by Standard EN14781

*"A licence holder is not authorised to modify, in any way, the equipment given by the manufacturer used in competition."*

Modifying equipment used in competition in relation to products supplied by the manufacturer is prohibited for obvious safety reasons. Whether it is a matter of modifying the length of the saddle, adapting approved wheels, filing off fork drop-out safety lugs, meeting the 3:1 rule by adding tape to handlebars or adding a nonslip system on the saddle, no modification of equipment that is not conducted by the manufacturer is authorised by the UCI without prior approval.

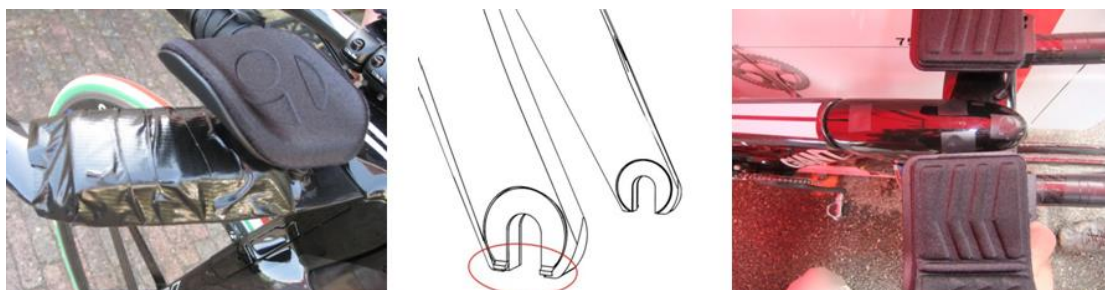


Figure 2: Examples of prohibited modification of equipment (addition of tape, filing off fork drop-out safety lugs and covering frame and handlebar bolts)

The addition of handlebar tape to improve the rider's grip is authorised, but tape must be identifiable and only used where the rider's hands grip the handlebars.

### ARTICLE 1.3.003

*"In no event shall the fact that a rider has been able to take part in the competition give rise to liability on the part of the UCI; checks on equipment that may be carried out by the commissaires or by an agent or a body of the UCI being limited to compliance with purely sporting requirements. Where required, checks on equipment and material may be carried out, after the race, at the request of the president of the commissaires' panel, or that of an agent or body of the UCI.*

*For that purpose, the commissaire and the UCI can requisition equipment for a subsequent check, if necessary even during the race, after the rider changed it."*

UCI commissaires are authorised to requisition equipment during an event, in particular in the event of a crash, in order to carry out checks and confirm the compliance of the equipment with the regulations.

### ARTICLE 1.3.004

*"Except in mountain bike racing, no technical innovation regarding anything used, worn or carried by any rider or license holder during a competition (bicycles, equipment mounted on them, accessories, helmets, clothing, means of communication, etc.) may be used until approved by the UCI. Requests for approval shall be submitted to the UCI, accompanied by all necessary documentation.*

*Participation to the examination costs is to be paid by the applicant and is determined by the UCI Management Committee according to the complexity of the submitted technical innovation.*

*At Material Commission's instigation, the UCI executive bureau studies the admissibility of the technical innovation from a sporting point of view and answers within 6 months from the submission date. The innovation comes into force as from the acceptance date.*

*There is no technical innovation in the sense of the present article if the innovation entirely falls within the specifications foreseen in the regulations."*

Technical innovations must be submitted to the UCI in advance and approved by the Equipment Commission before they can be used in competition.

A technical innovation is defined as a new system, device or item of equipment that allows an improvement of a rider's performance, adds new functions to the bicycle, modifies the bicycle's general appearance or affects any other aspect of the UCI regulations.

If there is any doubt, it is preferable to present new equipment to the UCI which will determine whether it is a matter of a technical innovation or not. New equipment will be carefully studied by experts in order to evaluate the benefits and how such equipment could improve cycle sport as well as assessing the risks and any potential divergence from the regulations. The most appropriate decision will then be taken in the interest of the sport.

**ARTICLE 1.3.005**

*"If at the start of a competition or stage the commissaires' panel considers that a rider arrives with a technical innovation or an equipment not yet accepted by the UCI, it shall refuse to permit the rider to start with such an innovation.*

*In the event of use in competition, the rider shall automatically be expelled from the competition or disqualified. There shall be no right to appeal against the decision of the commissaire's panel.*

*If this technical innovation or the equipment not yet accepted by the UCI are not noticed or sanctioned by the commissaire's panel, the UCI disciplinary commission shall order the disqualification. The UCI shall refer to the disciplinary commission, either automatically or at the request of all interested. The disciplinary commission will only apply sanctions after having received the opinion of the equipment commission.*

*In out of competition situations, the UCI shall decide whether an item should be considered a technical innovation and whether the procedure provided for in article 1.3.004 is to be followed."*

There are 3 different possibilities to sanction the use of a technical innovation in competition that was not approved by the UCI first:

- In cases where the technical innovation is checked before the start of a race, the rider is not allowed to start the race unless he removes or replaces the concerned equipment.
- In cases where the technical innovation is spotted during the race, the rider is automatically expelled from the competition or disqualified.
- In cases where the technical innovation is not sanctioned by the commissaire's panel neither before the start, nor during the race, the disqualification may be decided afterward by the UCI disciplinary commission.

During the events, the commissaire's panel make the decision to determine if an equipment meets the technical innovation's definition and which sanction to apply. In out of competition situations or when a technical innovation is reported after the end of an event, the UCI disciplinary commission make the decision if a technical innovation was used and what would be the sanction that applies.

**ARTICLE 1.3.006**

*"The bicycle is a vehicle with two wheels of equal diameter. The front wheel shall be steerable; the rear wheel shall be driven through a system comprising pedals and a chain."*

The bicycle is a vehicle with two wheels which must be of equal diameter. The front wheel is steerable; the rear wheel is driven. The bicycle is propelled solely by a system of pedals acting upon a chain. Only one chain may be used on the bicycle in order to engage the transmission between the bottom bracket and the driven wheel.

The bicycle must be in "working order" with a steering system acting on the steerable wheel and a propulsion system acting on the driven wheel by means of a circular movement through a chainset comprising one or more chainwheels and two arms (cranks), arranged at 180°, one as an extension of the other, in the same plane.

**ARTICLE 1.3.007**

*"Bicycles and their accessories shall be of a type that is sold for use by anyone practising cycling as a sport.*

*Any equipment in development phase and not yet available for sale (prototype) must be subject of an authorization request to the UCI Equipment Unit before its use. Authorization will be granted only for equipment which is in the final stage of development and for which commercialization will take place no later than 12 months after the first use in competition. The manufacturer may request a single prolongation of the prototype status if justified by relevant reasons.*

*The UCI Equipment Unit will pay particular attention to safety of the equipment which will be submitted to it for authorization.*

*The use of equipment designed especially for the attainment of a particular performance (record or other) shall be not authorised."*

The bicycle must be accessible to all participants. All the components of the bicycle must be available commercially (i.e. available on the market or sold directly by the manufacturer) at the latest twelve months after their first use in competition. To implement this twelve-month period, the manufacturer must publicly announce that the product in question is being used in competition and when it will be available for sale. In all cases the product must be in a final stage of development, very similar to the product that will be marketed.

Thus, it is not allowed to use equipment in competition that is not either available on the market or authorized by the UCI Equipment Unit and previously communicated by the manufacturer (with a twelve months period for the marketing).

The use of equipment specially designed for a particular athlete, event or performance are prohibited. "Specially designed" means a bicycle with a technical added value when compared with other equipment.

No minimum production quantity or minimum price is defined for either bicycles or any component parts.

**ARTICLE 1.3.008**

*"The rider shall normally assume a sitting position on the bicycle. This position requires that the only points of support are the following: the feet on the pedals, the hands on the handlebars and the seat on the saddle."*

The use of a supplementary point of support such as a lumbar support achieved by an excessive inclination of the saddle or the addition of a lumbar support component to the saddle is not authorised in order to ensure fairness in competition.

**ARTICLE 1.3.009**

*"The bicycle should have handlebars which allow it to be ridden and manoeuvred in any circumstances and in complete safety."*

Bicycles used in road and cyclo-cross events must be fitted with an efficient braking system that acts on both wheels (either simultaneously or independently) operated by two brake levers. The use of a fixed gear in competition is prohibited. Bicycles shall have at least 89 mm clearance between the pedal spindle and the front tyre when

turned to any position in accordance with the requirements of the EN14781 safety standard to not be hindered when turning.

Hydraulic brake systems on rims are authorised provided that their attachment to the bicycle does not contravene any regulations (brake hoods must not become extensions, no integrated systems to improve the aerodynamic properties of the frame, etc.). Disc brake systems are prohibited in road events. However, as indicated by Article 1.3.025, disc brakes are authorised for cyclo-cross events.

## ARTICLE 1.3.010

*"The bicycle shall be propelled solely, through a chainset, by the legs (inferior muscular chain) moving in a circular movement, without electric or other assistance."*

*In para-cycling, mechanical prostheses/orthopaedic braces for upper or lower limbs can only be used by athletes who have been evaluated in accordance with the UCI classification procedure and who have Review (R) or Confirmed (C) status.*

*In no case may a mechanical prosthesis/orthopaedic brace for the lower limbs be used outside para-cycling events.*

The movement of the pedal axle around the bottom bracket axle must be completely circular. Oval chainwheels are allowed if the path is circular with a crank arm geometry that does not change.

The addition of mechanical or electrical systems that serve to assist the rider is prohibited. The use of an electronic unit solely to change gears is authorised provided that the attachment to the bicycle does not contravene any regulations.

All athletes, disabled or able-bodied, wanting to wear prosthesis or orthopaedic braces should go through the classification procedure. Able-bodied athletes cannot use mechanical prostheses/orthopaedic braces because they would have NE (Not Eligible) status according to the classification procedure.

Mechanical prosthesis/orthopaedic braces for lower limbs are prohibited in able-bodied events. On the other hand, mechanical prostheses/orthopaedic braces for upper limbs will be authorised (after evaluation) if they allow an improvement in handling skills compared to a fixed prosthesis/orthopaedic brace. An athlete with a mechanical prosthesis/orthopaedic brace for upper limbs can thus take part in able-bodied competition upon receiving authorisation from the integration procedure.

## ARTICLE 1.3.011

*"Except where stated to the contrary, the technical specifications given in the articles 1.3.011 to 1.3.025 shall apply to bicycles used in road, track and cyclo-cross racing."*

*The specific characteristics of bicycles used in mountain bike, BMX, trials, indoor cycling and paracycling for riders with disabilities are set out in the part regulating the discipline in question."*

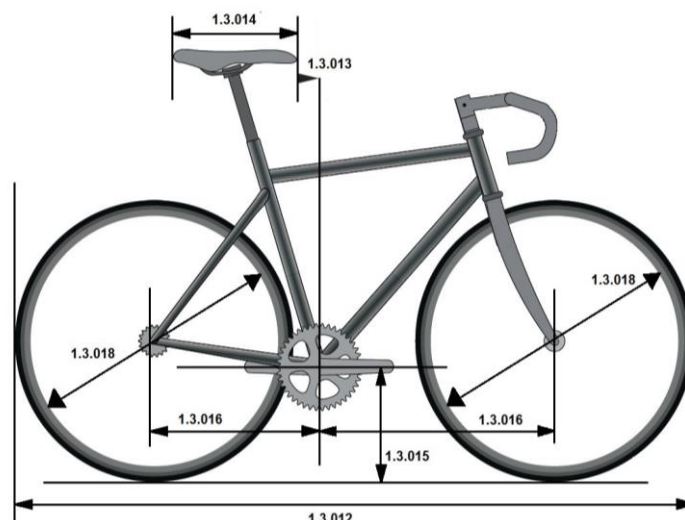


Figure 3: Illustration of the parts of the bicycle covered by Articles 1.3.011 to 1.3.025

## ARTICLE 1.3.012

*"A bicycle shall not measure more than 185 cm in length and 50 cm in width overall. A tandem shall not measure more than 270 cm in length and 50 cm in width overall."*

The maximum width of 50cm for the bicycle directly relates the maximum authorised width of handlebars.

## ARTICLE 1.3.013

*"The peak of the saddle shall be a minimum of 5 cm to the rear of a vertical plane passing through the bottom bracket spindle. This restriction shall not be applied to the bicycle ridden by a rider in a sprint event on track (flying 200 m, flying lap, sprint, team sprint, keirin, 500 metres and 1 kilometre); however, in no circumstances shall the peak of the saddle extend in front of a vertical line passing through the bottom bracket spindle."*

*The peak of the saddle can be moved forward until the vertical line passing through the bottom bracket spindle where that is necessary for morphological reasons. By morphological reasons should be understood everything to do with the size and limb length of the rider.*

*Any rider who, for these reasons, considers that he needs to use a bicycle of lesser dimensions than those given shall inform the commissaires' panel to that effect at the time of the bike check.*

*Only one exemption for morphological reasons may be requested; either the peak of the saddle can be moved forward or the handlebar extensions can be moved forward, in accordance with Article 1.3.023"*

The withdrawn position of the saddle is measured from the tip of the saddle to the vertical plane passing through the centre of the bottom bracket axle.

Any rider who considers, for morphological reasons, that he or she cannot respect the regulations concerning the withdrawn position of the saddle may obtain an exemption from the commissaire at the time of the bike check. In no case the peak of the saddle can exceed the vertical line passing through the bottom bracket spindle

If the exemption for the saddle is used, the rider cannot use the exemption for the extensions length in accordance with Article 1.3.023

## ARTICLE 1.3.014

*"The plane passing through the highest points at the front and rear of the saddle can have a maximum angle of nine degrees from horizontal. The length of the saddle shall be 24 cm minimum and 30 cm maximum. A tolerance of 5mm is allowed."*

It is important to grant the rider sufficient freedom to allow a comfortable position to be adopted, reducing the pressure on the perineum, while avoiding any deviation through an excessively sloping saddle that could improve sporting performance to an unacceptable degree by the addition of a lumbar support. Furthermore, if the saddle is inclined too severely, this reduces the quality of the rider's position on the saddle, thus reducing its intrinsic function of providing a basic support for the rider on the bicycle.

Checks on the horizontality of saddles are conducted in the road, track and cyclo-cross events by measuring the angle of incline of the saddle, considering the plane passing through the highest points at the front and rear of the saddle. This angle must be less than 9 degrees (positive or negative incline).

The commissaries are provided with a measuring device as shown in the Figure 4. Checks will not be systematic, but in the event of any doubt, the commissaires will place the device on the saddle to determine its angle of incline after having calibrated the device to the ground or the measuring jig.



Figure 4: Official measuring device to check saddle inclination

The measurement of the horizontality of saddles must be a simple, fair and repeatable process. The tolerance of 9 degrees gives the rider a lot of freedom to adjust his or her position on the bike. Commissaires are able to give a clear, coherent and categorical response when carrying out saddle checks.

## ARTICLE 1.3.015

*"The distance between the bottom bracket spindle and the ground shall be between 24 cm minimum and maximum 30 cm."*

The aim of this rule, among other things, is to avoid the risk of the cranks or pedals touching the ground when cornering.

## ARTICLE 1.3.016

*"The distance between the vertical passing through the bottom bracket spindle and the front wheel spindle shall be between 54 cm minimum and 65 cm maximum."*

*The distance between the vertical passing through the bottom bracket spindle and the rear wheel spindle shall be between 35 cm minimum and maximum 50 cm."*

If the front or rear centre is too short, this will reduce the bicycle's stability whereas if the front or rear centre is too long the bicycle will be less manoeuvrable.

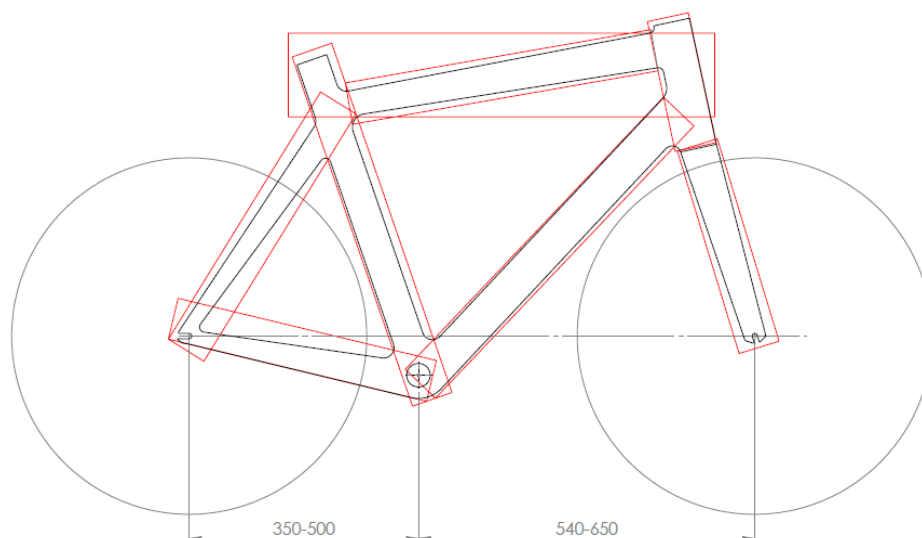


Figure 5: Illustration of the minimum and maximum distances between the bottom bracket and front and rear wheel axles

## ARTICLE 1.3.017

*"The distance between the internal extremities of the front forks shall not exceed 11.5 cm; the distance between the internal extremities of the rear triangle shall not exceed 14.5 cm."*

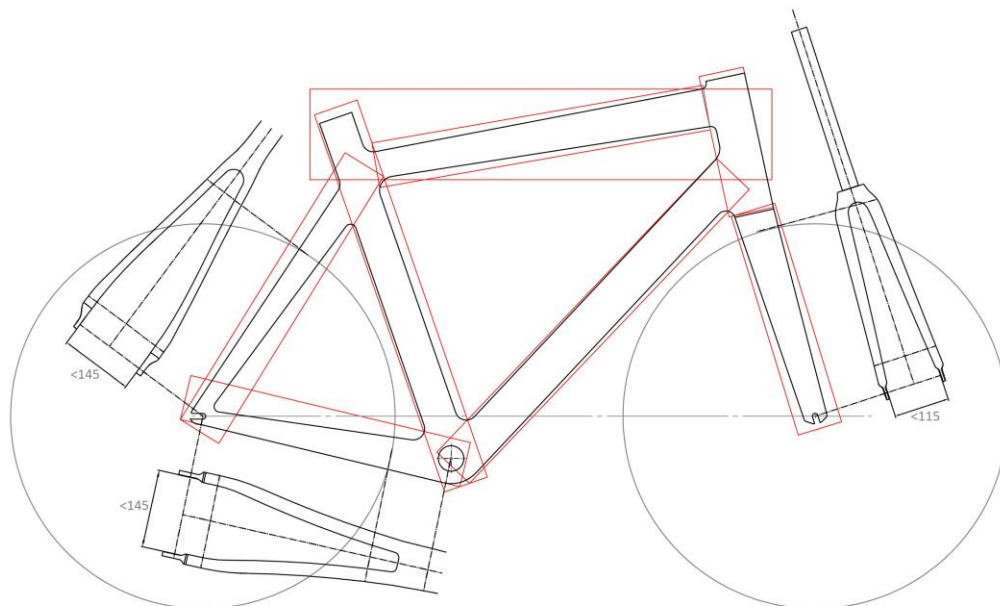


Figure 6: Illustration of the maximum distances between the fork drop-outs and rear drop-outs

## ARTICLE 1.3.018

*"Wheels of the bicycle may vary in diameter between 70 cm maximum and 55 cm minimum, including the tyre. For the cyclo-cross bicycle the width of the tyre (measured between the widest parts) shall not exceed 33 mm and it may not incorporate any form of spike or stud."*

*For massed start competitions in the disciplines road and cyclo-cross, only wheel designs granted prior approval by the UCI may be used. Wheels shall have at least 12 spokes; spokes can be round, flattened or oval, as far as no dimension of their sections exceeds 10 mm.*

*In order to be granted approval wheels must have been subjected to the Vertical Drop Test which consists of :*

### **Test method : Vertical Drop Test**

*Vertical drop test (neutralization of the rebound of the anvil)*

### **Energy level :**

*40 Joules*

### **Impact striker geometry :**

*Flat steel anvil, the impact surface is covered with a silicone rubber pad of 20mm thickness (Hardness Shore A=50 +/- 5, Compression set of 40% acc. To ASTM D395 Methode B). The rubber pad requires to be undamaged.*

## **Impact mass :**

Range of 6 – 10 kg

Energy must always remain at 40 Joules at the hit with a +/- 5% tolerance.

## **Hitting point :**

One hit at 90° from valve hole, adjusted to have the impact point of anvil between the spokes

In order to be certified as passed, the alloy and/or carbon wheels shall have

- No visible cracks or delamination
- No change in lateral profile or in lateral run out in excess of 1.0mm
- No change in radial profile or in radial run out in excess of 1.0mm

Wheels which meet the definition of traditional wheels do not need to be certified.

## **Definition of Traditional wheels :**

Criteria :

Rim height: less than 25 mm

Rim material: alloy

Spokes: minimum of 20 steel spokes which are detachable and all components must be identifiable and commercially available

In track competition, the use of a front disc wheel is only permitted in the specialities against the clock

Notwithstanding this article, the choice and use of wheels remains subject to articles 1.3.001 to 1.3.003."

This regulation applies to road races and cyclo-cross. There is a distinction between standard and non-standard wheels. The latter must pass a vertical drop test using a specific procedure in order to be included in the list of wheels authorised for competition. This document entitled "List of Approved Wheels" and further detailed information on the test procedure for non-standard wheels are available on the UCI website under the "Equipment" heading.

The procedure does not apply to time trials on the road or track events.

The list of approved wheels under the previous procedure, in force until the 31 December 2015, is also available on the UCI website under the "Equipment" heading. The wheels included in this list are still allowed in competition.

For the individual sprint, the front disc wheel is allowed for the qualifications (200m flying start) but not for the matches.

## ARTICLE 1.3.019

*"The weight of the bicycle cannot be less than 6.8 kilograms."*

The minimum weight of the bicycle (in working order) is 6.800 kg, considered without on-board accessories in place, that is to say those items that may be removed during the event. The bottles, on-board computers and all others removable accessories must be removed during the weight check. However, the bottle cages, fixture systems and clipped-on extensions are part of the bicycle and stay in place during the weighing.



Figure 7 : Measuring the weight of a bicycle

## ARTICLE 1.3.020

### TRIANGULAR SHAPE

*"For road competitions other than time trials and for cyclo-cross competitions, the frame of the bicycle shall be of a traditional pattern, i.e. built around a main triangle."*

The triangular shape is defined from a design using 8 cm-wide boxes for each tube. In order to comply with this rule, the nominal rear wheel axle must be located within the seat stay and chain stay boxes. Furthermore, the bottom bracket axle must be located inside the chain stay, seat tube and down tube boxes. The drawing below illustrates these conditions.

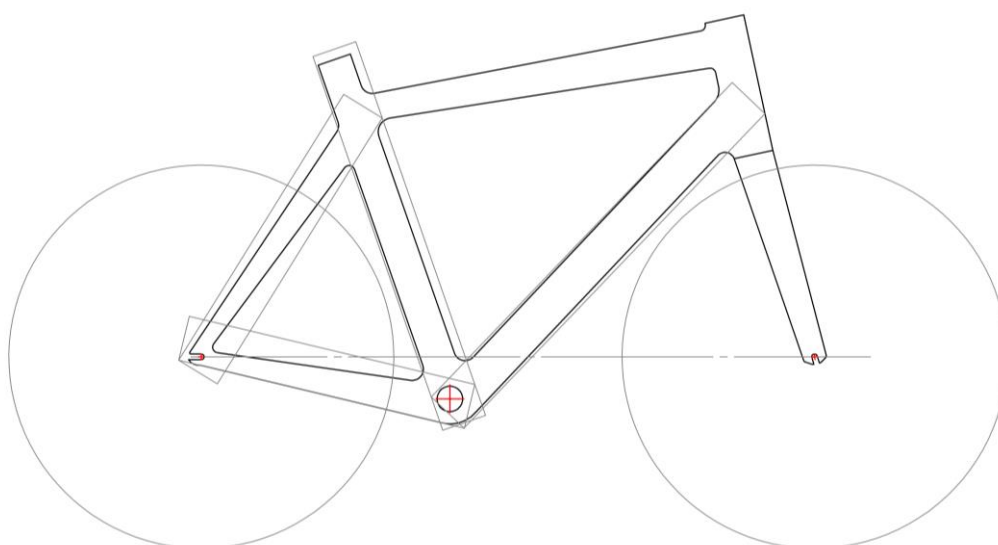


Figure 8: Illustration of the bottom bracket and rear wheel axles inside the corresponding boxes

This rule results from the Lugano Charter and has the objective of preserving the culture and image of the bicycle as an historical fact. Among other things, it prevents the use of "girder" frames and bicycles with extravagant shapes that do not represent bicycles as understood by the UCI and which would change the existing disciplines.



Figure 9: Example geometry of a bicycle that does not comply with UCI regulations

## STRAIGHT LINES

*"It shall be constructed of straight or tapered tubular elements (which may be round, oval, flattened, teardrop shaped or otherwise in cross-section) such that the form of each element except the chain stays and the seat stays encloses a straight line."*

In road races and cyclo-cross events, the frame tubes must be tubular with out excessive curvature. The frame elements may be slightly curved, but a straight line must be able to be drawn within each element along its length. The start and finish points of these lines is shown on the diagram below.

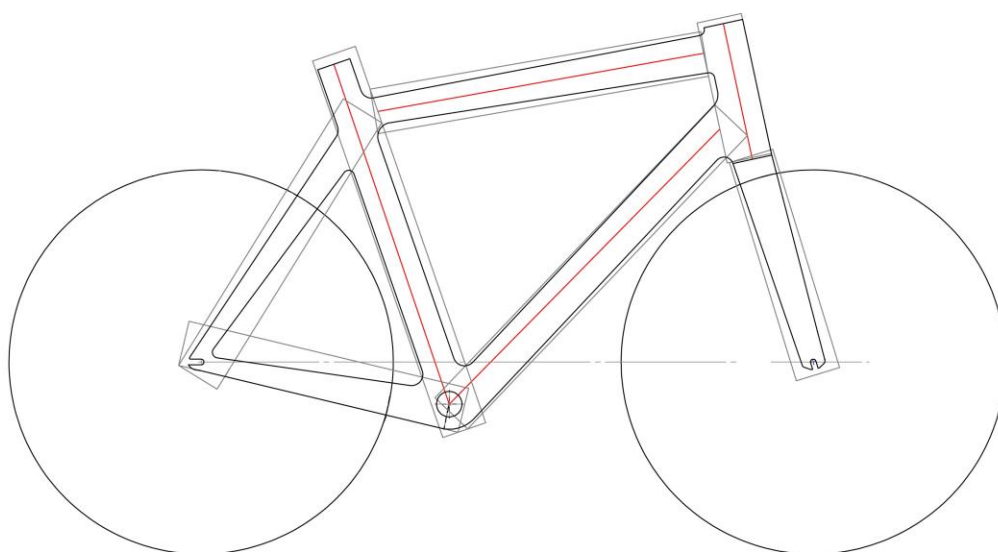


Figure 10: Illustration of the start and finish points of the straight lines required inside tubes

The start and finish points of the lines inside road and cyclo-cross frame elements are the following:

- Top tube: from the intersection of the front of the seat tube box with the top tube to the intersection of the rear of the head tube box with the top tube.
- Head tube: from the section through the top of the head tube to the lower section taken at the point of contact with the forks.
- Down tube: from the centre of the bottom bracket to the intersection of the rear of the head tube box with the down tube.
- Seat tube: from the centre of the bottom bracket to the section passing through the top of the seat tube.

In the case of double tubes, the straight line must fall within the envelope encompassing both tubes. In this case, it is not obligatory to be able to insert a straight line within each tube separately.

It is not necessary for a straight line to pass inside the chain stays, seat stays, and fork blades.

## THE SHAPE OF TUBES

*"The elements of the frame shall be laid out such that the joining points shall follow the following pattern: the top tube (1) connects the top of the head tube (2) to the top of the seat tube (4); the seat tube (from which the seat post shall extend) shall connect to the bottom bracket shell; the down tube (3) shall connect the bottom bracket shell to the bottom of the head tube. The rear triangles shall be formed by the chain stays (6), the seat stays (5) and the seat tube (4) with the seat stays anchored to the seat tube at points falling within the limits laid down for the slope of the top tube."*

The frame and forks must be able to fit entirely within the template formed by seven rectangular boxes of 80 mm width as shown by the diagram below. Manufacturers are free to adjust the positioning of the boxes provided that the frame geometry respects all articles of the technical regulations and the frame and forks are entirely contained within the boxes.

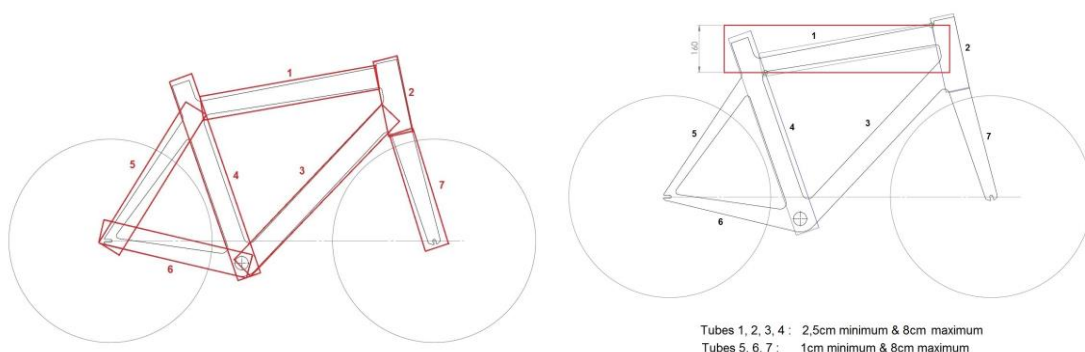


Figure 11: General illustration of the shape and positioning of the 8 cm boxes

A template formed by red boxes for each element is shown below. The points circled in green show the limits of the box lengths. The head tube box must be aligned with the steerer axis.

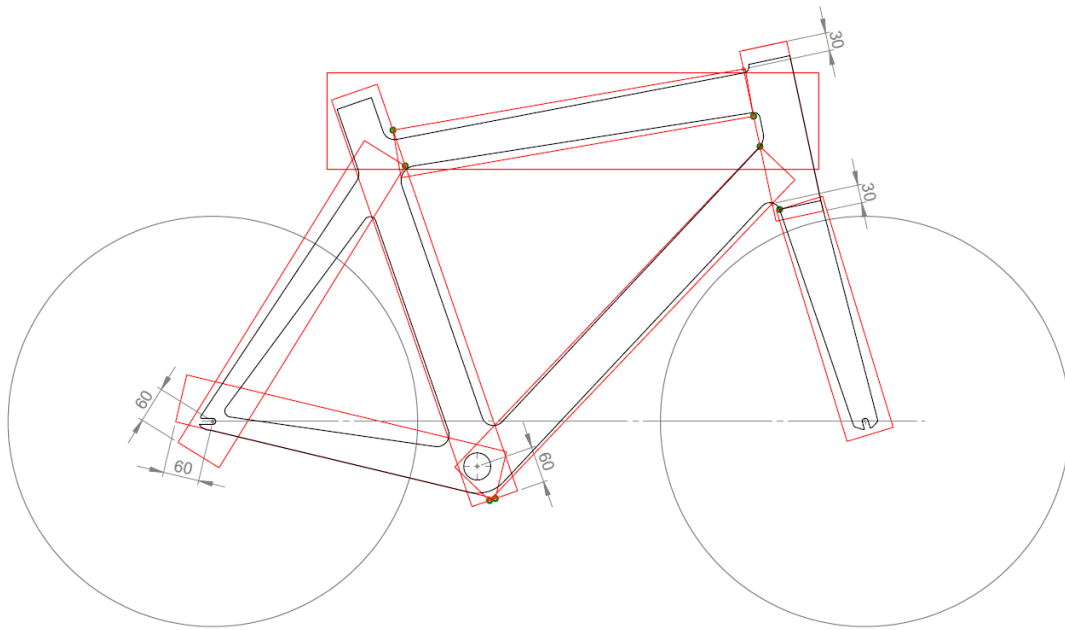


Figure 12: Illustration of the template showing the start and finish points of the 8 cm boxes for each element

The start and finish points of the 8cm boxes for road race and cyclo-cross frames are the following:

- Top tube: the front line of the box must pass through the point of intersection of the rear line of the head tube box with the lower line of the top tube box; the rear line of the box must pass through the point of intersection of the front line of the seat tube box with the upper line of the top tube box.
- Head tube: the front line of the box must pass no more than 30 mm above the point of intersection of the rear line of the head tube box with the upper line of the top tube; the lower line of the box must pass no more than 30 mm below the point of intersection of the lower line of the down tube box with the rear line of the head tube box.
- Down tube: the front line of the box must pass through the point of intersection of the rear line of the head tube box with the upper line of the down tube box; the rear line of the box must pass through the point of intersection of the lower line of the seat tube box with the lower line of the down tube box.
- Seat tube: the upper line of the box can be positioned at the desired height provided that the seat tube is entirely contained within the box; the lower line of the box must not be located in excess of 60 mm below the bottom bracket centre.
- Seat stays: the upper line of the box must pass through the point of intersection of the front line of the seat tube box with the front line of the seat stay box; the lower line of the box must not be located in excess of 60 mm below the rear wheel axle centre.
- Chain stays: the front line of the box must pass through the point of intersection of the lower line of the seat tube box with the lower line of the chain stay box; the rear line of the box must not be located in excess of 60 mm behind the rear wheel axle centre.

- Forks: the upper line of the box must pass through the lowest point of the head tube; the lower line of the box can be positioned at the desired height provided that the fork is completely contained within the box.

Any extension of the tube boxes beyond the points described above in order to contain certain frame parts is prohibited. For example, the extension of the top tube box behind the seat tube, as shown in Figure 15, is prohibited. The red zone of the frame is not allowed under the regulations and the red part of the top tube box must not be used.

Cable guides and the seat bolt do not have to be contained within the 8 cm boxes provided that there is no deviation from their principal function. If these parts are integrated into the frame, everything must fit inside the boxes.

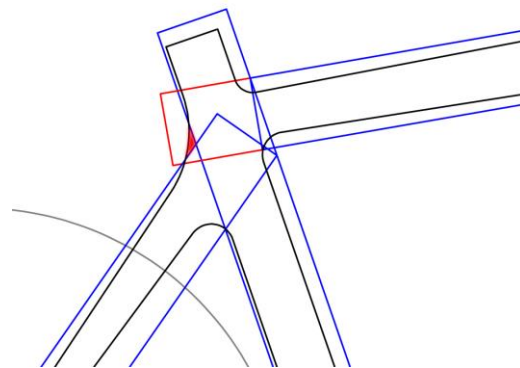


Figure 13: Illustration of the unauthorised extension of the top tube box behind the seat tube

## TUBE DIMENSIONS

*"The maximum height of the elements shall be 8 cm and the minimum thickness 2.5 cm. The minimum thickness shall be reduced to 1 cm for the chain stays (6) and the seat stays (5). The minimum thickness of the elements of the front fork shall be 1 cm; these may be straight or curved (7)."*

The terms "height" and "thickness" used in the article should be understood to be the largest and smallest dimensions of tube sections respectively, i.e. the maximum and minimum dimensions authorised in any direction. Thus the maximum dimension of the section of elements is 8 cm while the minimum dimension is 2.5 cm (reduced to 1 cm for seat stays, chain stays and forks as well as for the integrated seat posts).

A tolerance of one millimetre is allowed for frame elements when carrying out checks at events to account for the thickness of surface coatings (paint and sponsors' logos). No tolerance is allowed when inspecting technical designs, in particular during approval procedures.

The blue areas of the illustration below show the parts of the frame and forks that must respect the rule of minimum and maximum dimension for the tubes, for road and cyclo-cross models.

All sections must be perpendicular to the front or upper edges (red lines in the drawings).

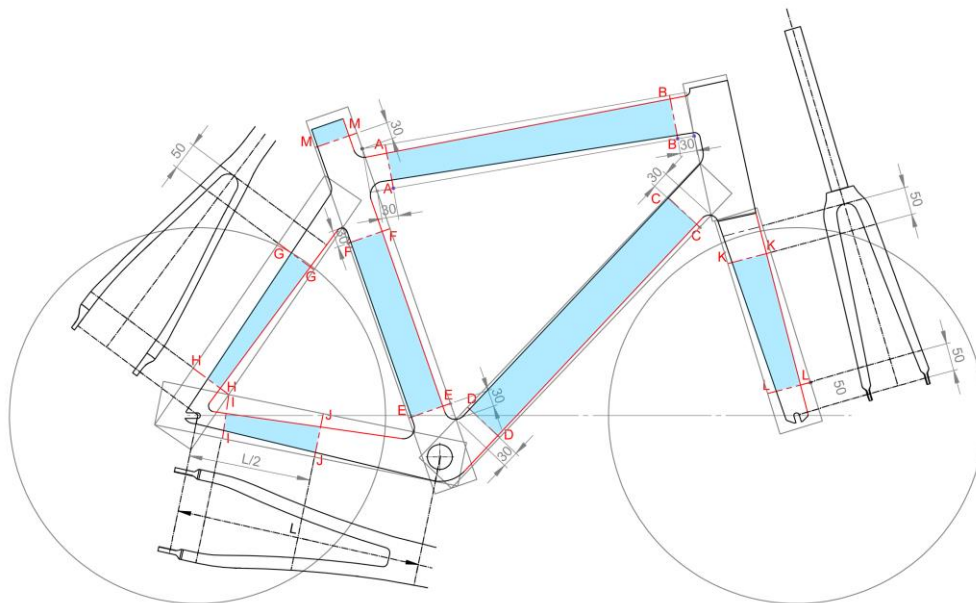


Figure 50: Illustration of the areas of the frame and forks subject to the rule of minimum and maximum dimension for the tubes, for road and cyclo-cross models

Sections A to M on the illustration represent the limits of these areas and are defined as follows:

- Section A-A: a perpendicular section at the end of the top tube passing through the point 30 mm from the front line of the seat tube box on the lower line of the top tube box.
- Section B-B: a perpendicular section at the end of the top tube passing through the point 30 mm from the rear line of the head tube box on the lower line of the top tube box.
- Section C-C: a perpendicular section at the end of the down tube passing through the point 30 mm from the rear line of the head tube box on the front line of the down tube box.
- Section D-D: a perpendicular section at the end of the down tube passing through the point 30 mm from the front line of the seat tube box on the rear line of the down tube box.
- Section E-E: a perpendicular section at the end of the seat tube passing through the point 30 mm from the rear line of the down tube box on the front line of the seat tube box.
- Section F-F: a perpendicular section at the end of the seat tube passing through the point 30 mm from the front line of the seat stay box on the rear line of the seat tube box.
- Section G-G: a perpendicular section at the end of the seat stays located 50 mm from the point where the seat stays join together.
- Section H-H: a perpendicular section at the end of the seat stays passing through the point of intersection of the front line of the seat stay box with the upper line of the chain stay box.
- Section I-I: a perpendicular section at the end of the chain stays passing through the point of intersection of the front line of the seat stay box with the upper line of the chain stay box.

- Section J-J: a perpendicular section of the chain stays passing through the point halfway between the centre of the bottom bracket and the rear wheel axle.
- Section K-K: a perpendicular section at the end of the fork blades located 50 mm from the point where the fork blades join together.
- Section L-L: a perpendicular section at the end of the fork blades located 50 mm from the front wheel axle.
- Section M-M: a perpendicular section at the end of the seat tube on the part above the top tube passing through the point 30 mm from the upper line of the top tube box on the front line of the seat tube box.

The regulations do not concern the transition zones between tubes.

## SLOPING TOP TUBE

*"The top tube may slope, provided that this element fits within a horizontal template defined by a maximum height of 16 cm and a minimum thickness of 2.5 cm."*

The top tube may be inclined (sloping) provided that this frame element is contained within a horizontal box of 16 cm height. The limits of this zone are established as shown in the diagrams below, i.e. upper limit by the intersection of the top tube with the head tube box and lower limit by the intersection of the top tube with the seat tube box.

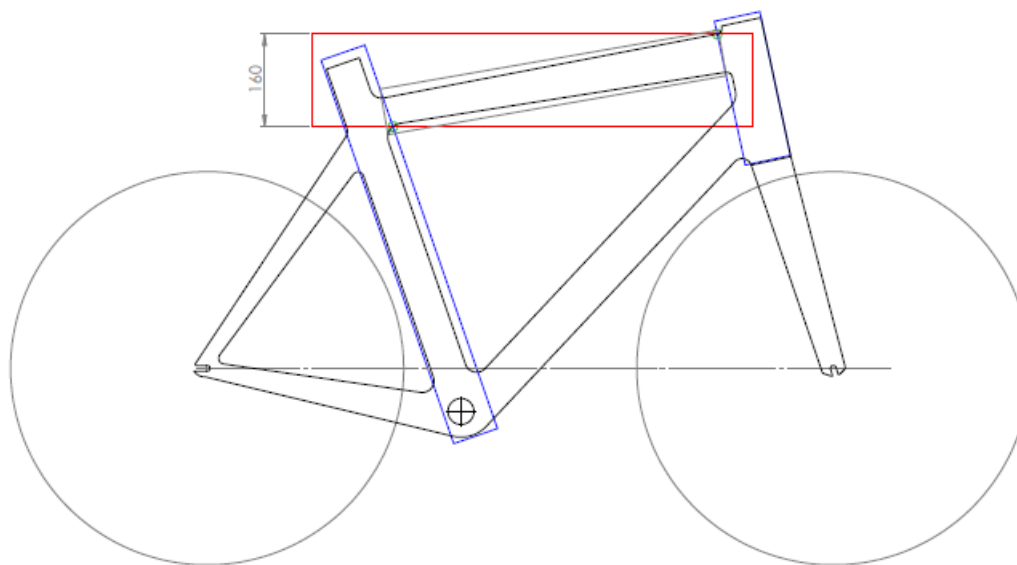


Figure 14: Illustration of maximum allowed sloping top tube

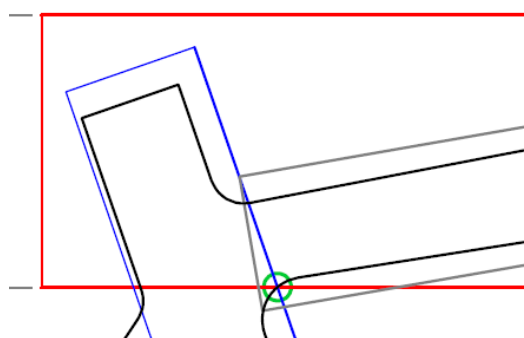


Figure 15: Lowest point (circled in green) that must be contained within the 16 cm-high horizontal box

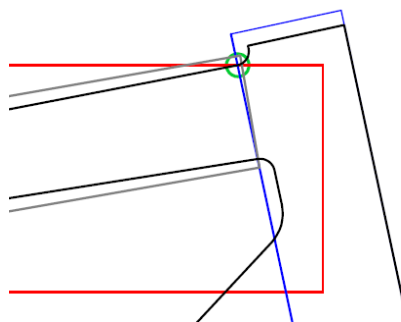


Figure 16: Highest point (circled in green) that must be contained within the 16 cm-high horizontal box

In addition to the requirement to fit within the 16 cm-high horizontal box, the top tube must also fit within the 8 cm box. This regulation applies to all road, track and cyclo-cross frames.

## ARTICLE 1.3.021

### THE SHAPE OF TUBES

*"For road time trials and for track competitions, the elements of the bicycle frame may be tubular or solid, assembled or cast in a single piece in any form (including arches, cradles, beams or any other)."*

The shape of the elements making up the frame is not restricted for road time trial and track events provided that they are contained within the triangular-shaped template (see diagram below), respect the 3:1 rule described by Article 1.3.024 and do not present any apparent dangers (protruding parts or sharp angles).

The bicycle must be designed and adjusted in such a manner that the rider can adopt a regulatory position as defined by Article 1.3.023.

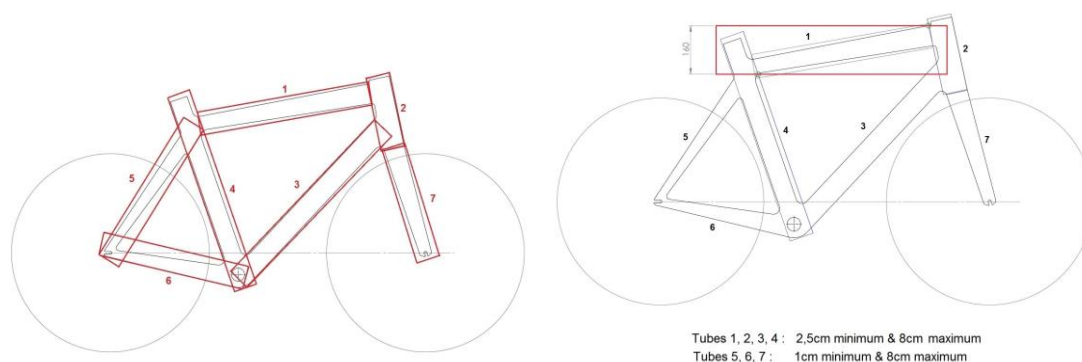


Figure 17: General illustration of the shape and positioning of the 8 cm boxes

## TRIANGULAR SHAPE AND TUBE DIMENSIONS

*“These elements, including the bottom bracket shell, shall fit within a template of the «triangular form» defined in article 1.3.020.”*

The triangular shape is defined from a design using 8 cm-wide boxes for each tube. In order to comply with this rule, the nominal rear wheel axle must be located within the seat stay and chain stay boxes. Furthermore, the bottom bracket axle must be located inside the chain stay, seat tube and down tube boxes. The drawing below illustrates these conditions.

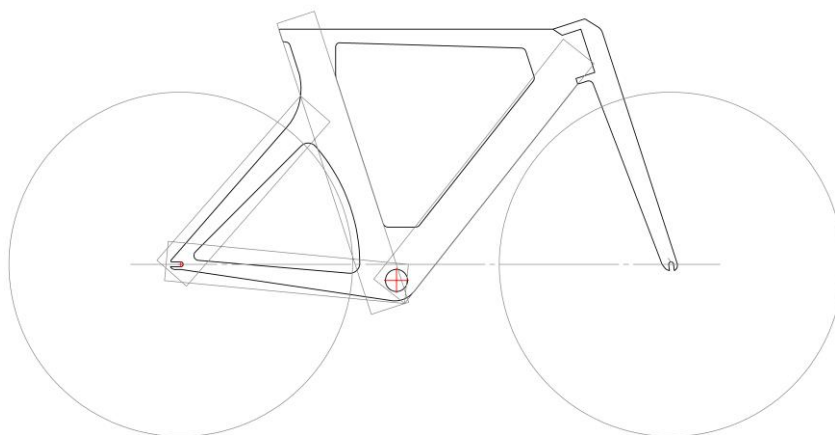


Figure 18: Illustration of the bottom bracket and rear wheel axles inside the corresponding boxes

If the seat tube is extended in such a way that it replaces the seat post, this is not taken into account when defining the frame's triangular shape, instead the point of reference is taken to be the intersection between the top tube and seat tube. However, the extension of the seat tube into a seat post must be completely contained by the seat tube box (as shown in the diagram below).

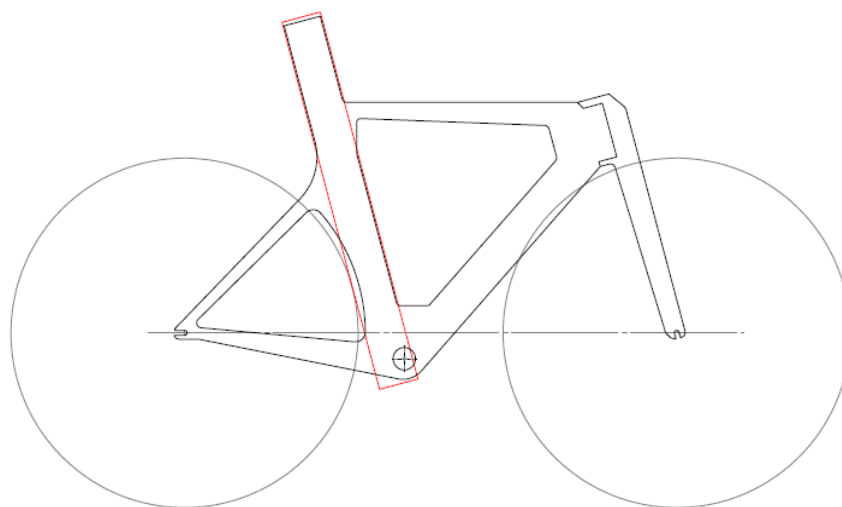


Figure 19: Illustration of the extension of the seat tube

The maximum dimension of the section of elements is 8 cm while the minimum dimension is 2.5 cm (reduced to 1 cm for seat stays, chain stays and forks).

A tolerance of one millimetre is allowed for frame elements when carrying out checks at events to account for the thickness of surface coatings (paint and sponsors' logos). No tolerance is allowed when inspecting technical designs, in particular during approval procedures.

The blue areas of the illustration below show the parts of the frame and forks that must respect the rule of minimum and maximum dimension for the tubes, for time trial and track models.

All sections must be perpendicular to the front or upper edges (red lines in the drawings).

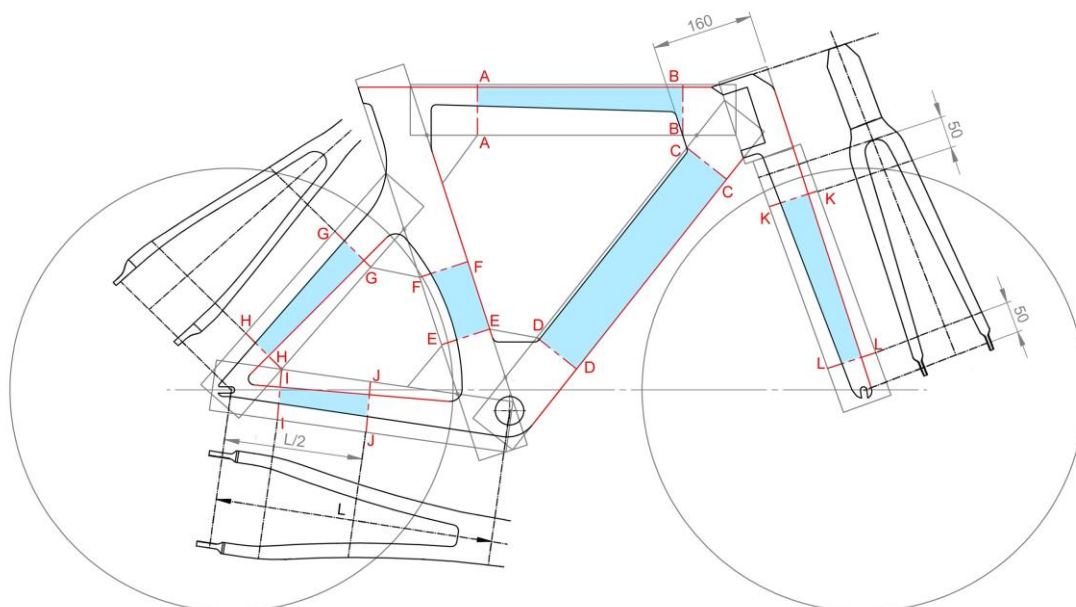


Figure 51: Illustration of the sections of the frame and forks subject to the rule of minimum and maximum dimension for the tubes, for time trial and track models

Sections A to L on the illustration represent the limits of these areas and are defined as follows:

- Section A-A: a perpendicular section at the end of the top tube passing through the point 80 mm from the front line of the seat tube box on the lower line of the top tube box.
- Section B-B: a perpendicular section at the end of the top tube passing through the point 160 mm from the front line of the head tube box on the lower line of the top tube box.
- Section C-C: a perpendicular section at the end of the down tube passing through the point 160 mm from the front line of the head tube box on the rear line of the down tube box.
- Section D-D: a perpendicular section at the end of the down tube passing through the point 80 mm from the front line of the seat tube box on the rear line of the down tube box.

- Section E-E: a perpendicular section at the end of the seat tube passing through the point 80 mm from the rear line of the down tube box on the front line of the seat tube box.
- Section F-F: a perpendicular section at the end of the seat tube passing through the point 80 mm from the front line of the seat stay box on the rear line of the seat tube box.
- Section G-G: a perpendicular section at the end of the seat stays passing through the point 80 mm from the rear line of the seat tube box on the front line of the seat stay box.
- Section H-H: a perpendicular section at the end of the seat stays passing through the point of intersection of the front line of the seat stay box with the upper line of the chain stay box.
- Section I-I: a perpendicular section at the end of the chain stays passing through the point of intersection of the front line of the seat stay box with the upper line of the chain stay box.
- Section J-J: a perpendicular section of the chain stays passing through the point halfway between the centre of the bottom bracket and the rear wheel axle.
- Section K-K: a perpendicular section at the end of the fork blades located 50 mm from the point where the fork blades join together.
- Section L-L: a perpendicular section at the end of the fork blades located 50 mm from the front wheel axle.

The regulations do not concern the transition zones between tubes.

Cable guides and the seat bolt do not have to be contained within the 8 cm boxes provided that there is no deviation from their principal function.

The frame and forks must be able to fit entirely within the template formed by seven rectangular boxes of 80 mm width and the compensation triangles as shown by the diagram below. Manufacturers are free to adjust the positioning of the boxes provided that the frame geometry respects all articles of the technical regulations and the frame and forks are entirely contained within the boxes.

A template formed by red boxes for each element is shown below. The points circled in green show the limits of the box lengths. The head tube box must be positioned in the same axis as the steerer tube.

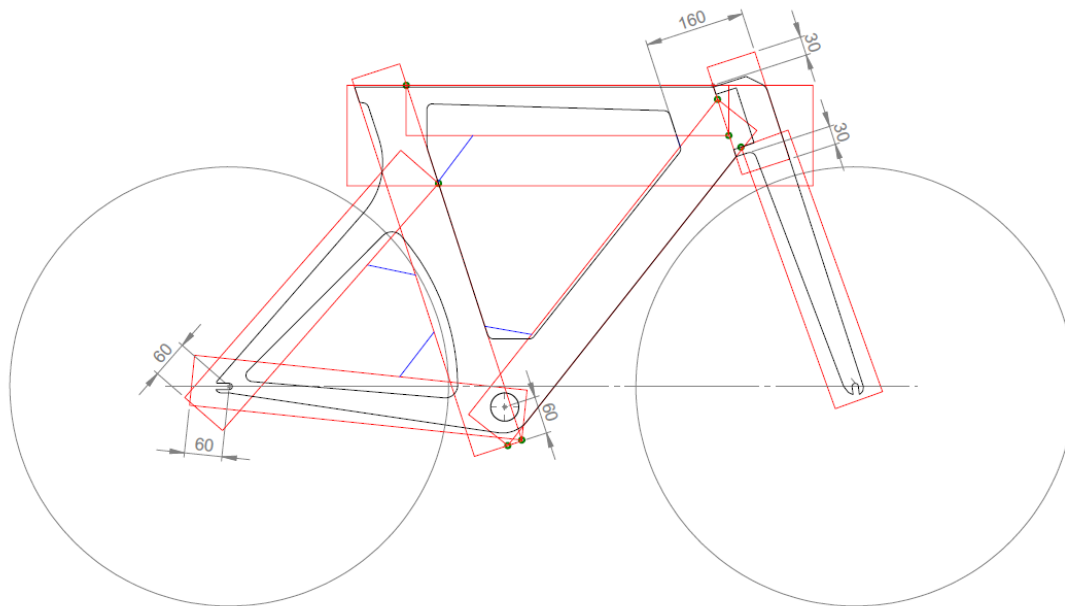


Figure 20: Illustration of the template showing the start and finish points of the 8 cm boxes of each element and reinforcement triangles

The start and finish points of the 8 cm boxes for time trial and track frames are the same as those previously defined for road and cyclo-cross frames.

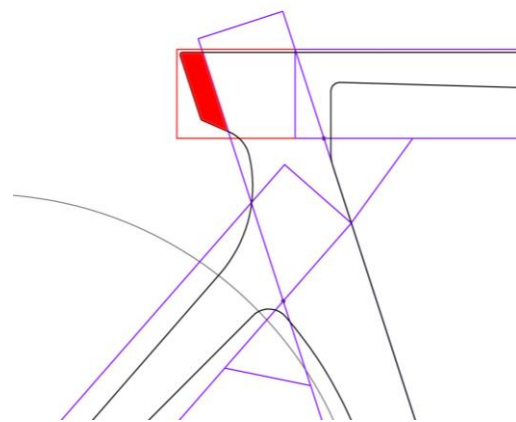


Figure 21: Illustration of the unauthorised extension of the top tube box behind the seat tube

Any extension of the tube boxes beyond the points described above in order to contain certain frame parts is prohibited. For example, the extension of the top tube box behind the seat tube, as shown in the Figure 23, is prohibited. The red zone of the frame is not allowed under the regulations and the red part of the top tube box must not be used.

## COMPENSATION TRIANGLES

*"The joint between frame section must fall within the highlighted triangle whose two sides have the same measurement as the height of the section, i.e. 8 cm."*

For road time trial and track events, reinforcement triangles with 8 cm sides are authorised at the joints between the tubes in order to accommodate the stresses relating to the specific properties of composites which require broader curves than metal to distribute and transmit forces through the frame without creating stress concentration zones that would make the frame more dangerous to use.

Authorised reinforcement triangles are shown in blue in the diagram below. A 16 cm reinforcement zone is defined for the section where the top tube, head tube and down tube connect.

The frame can completely fill the compensation triangles and areas, but in no case cross these limits.

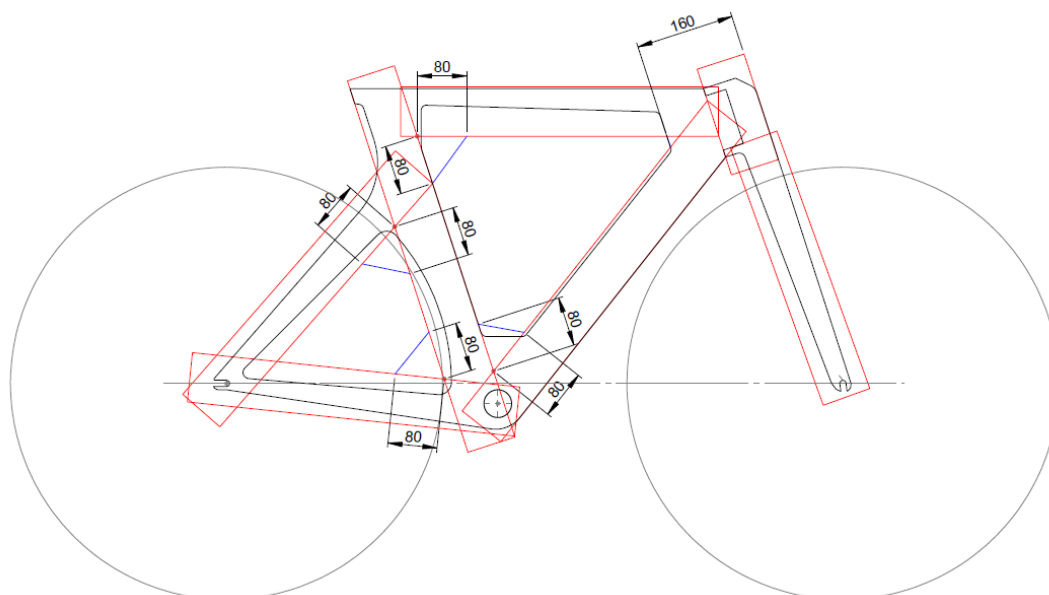


Figure 22: Illustration of compensation triangles

## ARTICLES 1.3.020 AND 1.3.021

### INCLINATION OF SEAT STAYS

The front line of the 8 cm seat stay box must cross the area of intersection between the horizontal 16 cm-high box and the 8 cm seat tube box. The rear wheel axle must be contained within the seat stay and chain stay boxes.

This regulation, illustrated by the diagram below, is the same for all road, track and cyclo-cross frames.

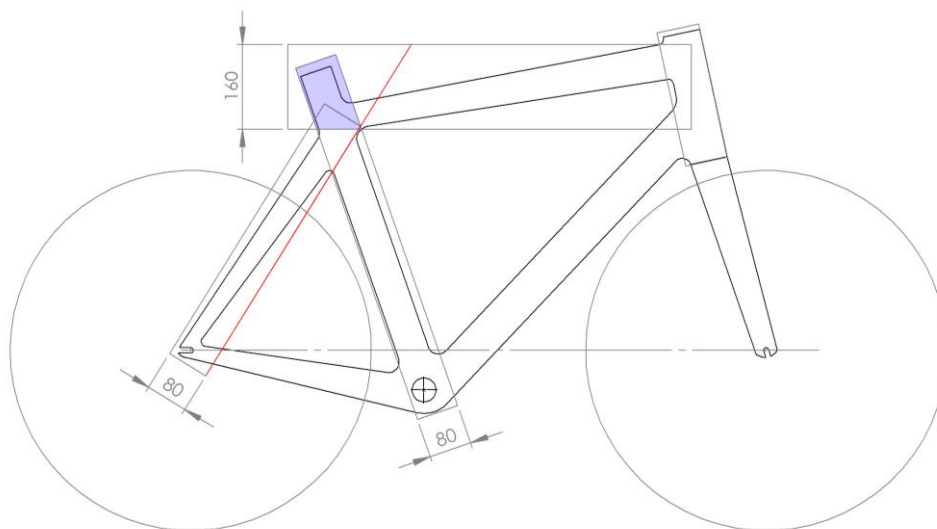


Figure 23: Illustration of the rule on the inclination of seat stays

### MULTIPLE ELEMENTS

Multiple elements are authorised for the frame (top tube, down tube, seat tube, seat stays, chain stays), the fork, the stem, the seat post and the handlebars. The multiple tubes have to respect the 3:1 rule if applicable, as well as the maximum section dimension of 8 cm and the minimum section dimension of 2.5 cm. This latter value is reduced to 1 cm for forks, seat stays and chain stays. The multiple elements rule applies in the same areas than the rule of the minimum and maximum dimension for the tubes. The diagrams below illustrate double tubes that comply with the regulations.

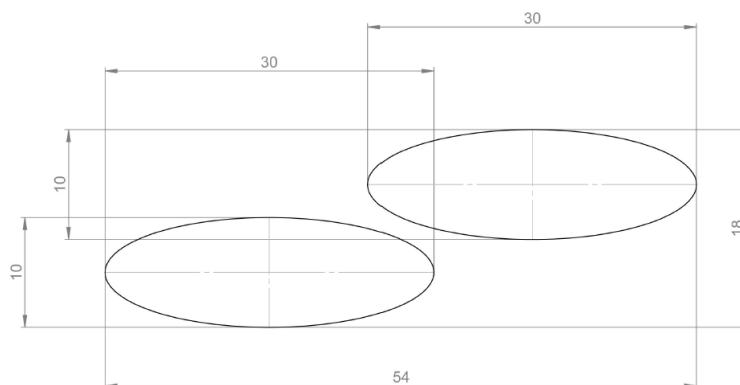


Figure 24: Example of a compliant section of an element formed by two tubes (minimum section of 1 cm applied to the fork, seat stays or chain stays)

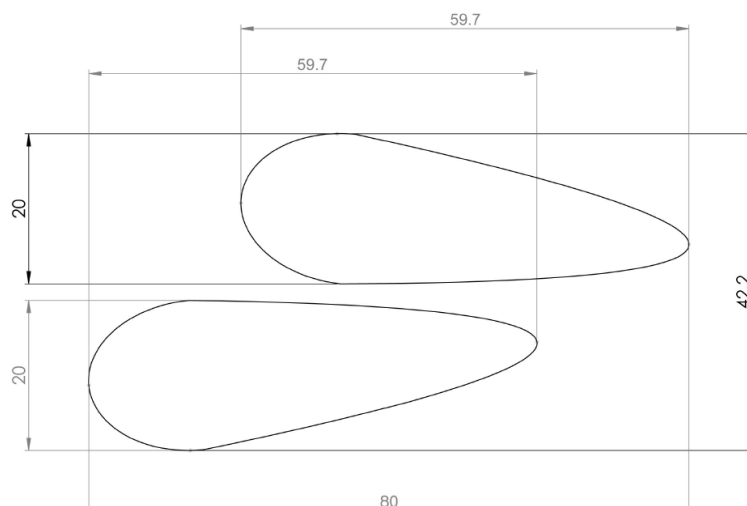


Figure 25: Example of a compliant section of an element formed by two tubes (minimum section of 1 cm applied to the fork, seat stays or chain stays)

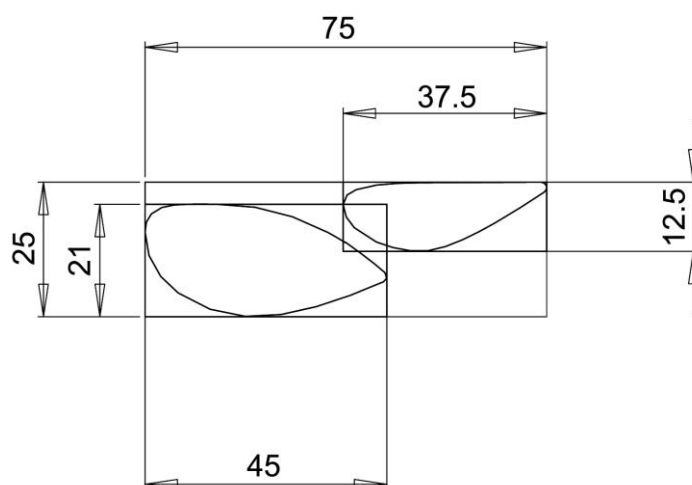


Figure 26: Example of a compliant section of an element formed by two tubes (minimum section of 1 cm applied to the fork, seat stays or chain stays)

In the event of a multiple elements of a length shorter than 8 cm, the same conditions as for other multiple elements apply with the exception that only one tube must respect the minimum section dimension of 2.5 or 1 cm. This scenario is limited to one exception per element.

### THE 16 CM RULE

The new 16 centimetres rule has been introduced to guarantee improved aerodynamic fairness in competition between taller and shorter riders and in order to allow manufacturers enough room for manoeuvre so that they can create a design which is consistent between different frame sizes while allowing an adequate level of rigidity to guarantee safety in this sensitive area of the frame.

The introduction of this amendment to the regulations does not affect the compliance of existing models of frames with the regulations.

The following text will be added to article 1.3.020 of the UCI Regulations and relates to all new frames as from 1 June 2012:

*“For road races other than time trials and for cyclo-cross races, the effective width of the head tube zone may not exceed 16 cm at the narrowest point between the inner joint of the top tube and down tube and the front of the box for the head tube.”*

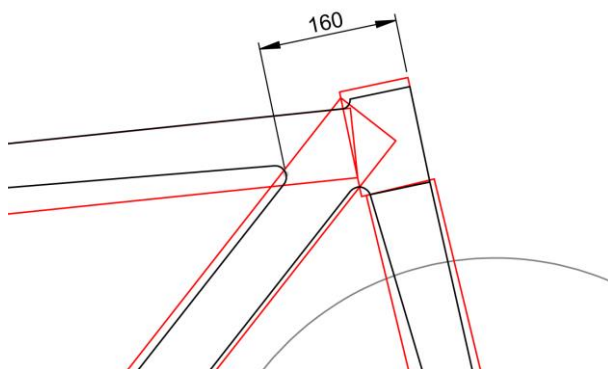


Figure 27: Illustration of the amended article 1.3.020

Likewise, the following text will be added to article 1.3.021 which will also come into force on 1 June 2012:

*“For road time trials and track competitions, the effective width of the head tube zone may not exceed 16 cm at the narrowest point between the inner joint of the top tube and down tube and the front of the box for the head tube.*

*Additionally, the compensation triangle between the top tube and down tube is replaced by a compensatory joint zone 16 cm wide delimited at its foremost by the front of the box for the head tube.”*

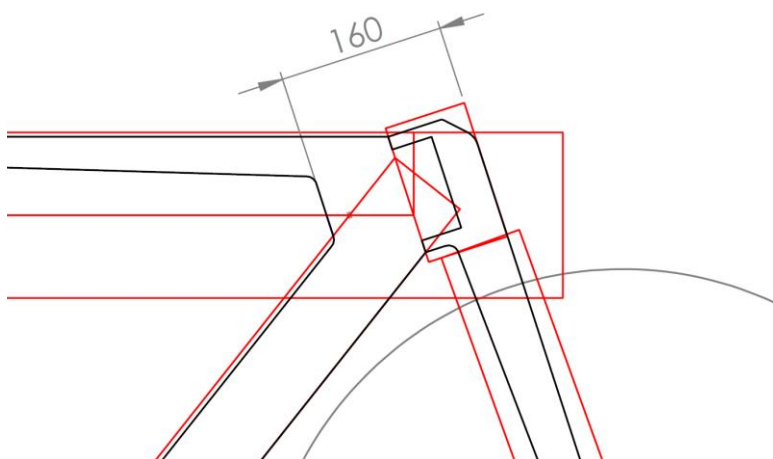


Figure 28: Illustration of amended article 1.3.021

To illustrate this amendment to the UCI technical regulations, a series of drawings will allow all the possible situations to be clarified.

First, in the case of small frame sizes, even if the frame fits entirely within the boxes, the distance between the front of the box for the head tube and the internal joint between the top tube and the down tube at the nearest point to the head tube must not exceed 16 cm.

In this specific instance, there is no compensatory joint zone that can be added to the boxes behind the head tube, since, as its name indicates, there is no scope for compensation, given how far forward the frame is. On the contrary, the 16 cm must be respected even inside the boxes as illustrated in the drawings below.

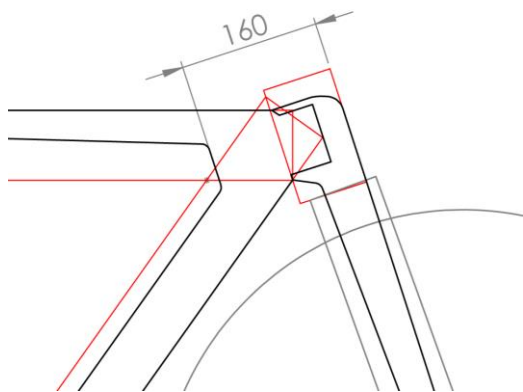


Figure 29: Illustration of the maximum distance of 16 cm for a small frame size (A)

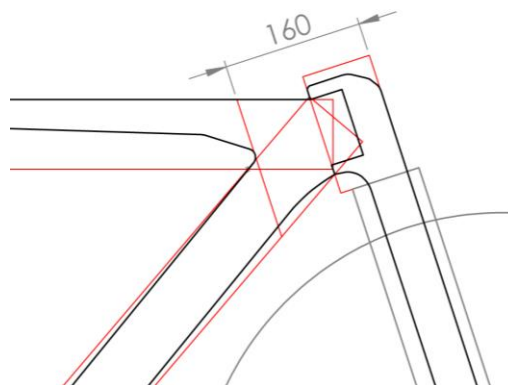


Figure 30: Illustration of the maximum distance of 16 cm for a small frame size (B)

The limit case where the 16 cm corresponds exactly to the intersection of the boxes for the top and down tubes is shown in the Figure 31. In this configuration, no compensatory joint zone can be added to the boxes behind the head tube.

Lastly, for average and large frame sizes, the compensatory triangle behind the head tube is replaced by a compensatory joint zone of 16 cm. This zone is constructed by tracing a line parallel to and 16 cm behind of the line of the front of the box for the head tube, between the boxes for the top and down tubes, as shown in the Figure 32.

The compensatory joint zone thus makes it possible to design a more homogeneous transition between the top tube and the down tube while permitting a better choice of the tube size for larger frames. Thus the aerodynamic advantage of small frames disappears while at the same time avoiding taller riders making use of small frames to obtain this benefit.

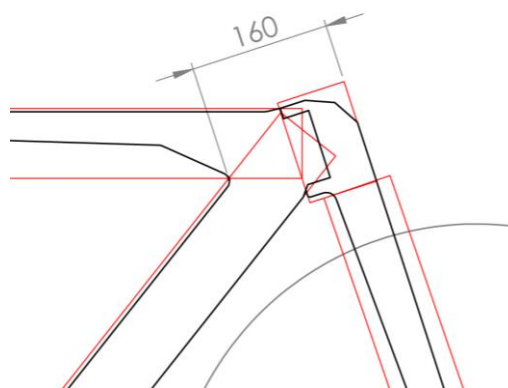


Figure 31: Illustration of the limit case

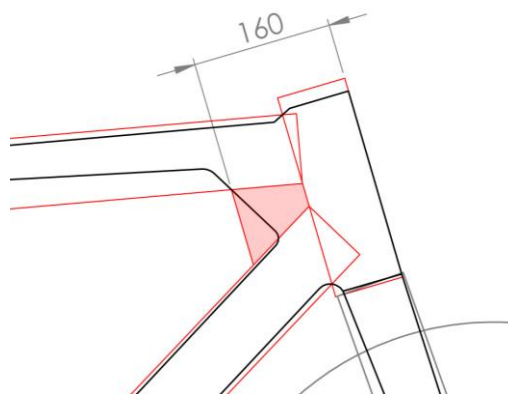


Figure 32: Illustration of the compensatory joint zone

## FORK GEOMETRY

When the fork comprises a steerer that is inserted inside the head tube, the fork is considered as a separate component to the frame. Consequently, the fork must be contained within a single box of 8 cm width (not including the steerer). This box starts at the point of contact (circled in the Figure 33) between the head tube and the fork crown but is not necessarily positioned in the same plane as the head tube.

When the fork is offset with the offset steerer component pivoting around its axis, it is considered to be integrated with the frame and thus the moving part is not considered separately from the structure of the frame. In this case the fixed and moving parts of the offset fork arrangement must be wholly contained within the template for the head tube.

Offset forks are authorised for road races, time trials, cyclo-cross and track events. The axis of the head tube must always be contained within the head tube box in offset forks, as illustrated in the Figure 34.

The body of the fork must be contained within a box although this can be offset in relation to the head tube. This box starts at the point of contact (circled in the Figure 37) between the head tube and the fork crown but is not necessarily positioned in the same plane as the head tube. For safety reasons relating to the properties of composites, the templates of the head tube and fork must overlap more than half the thickness of these boxes.

By no means can the boxes of the top tube or the down tube be used to cover a part of the fork.

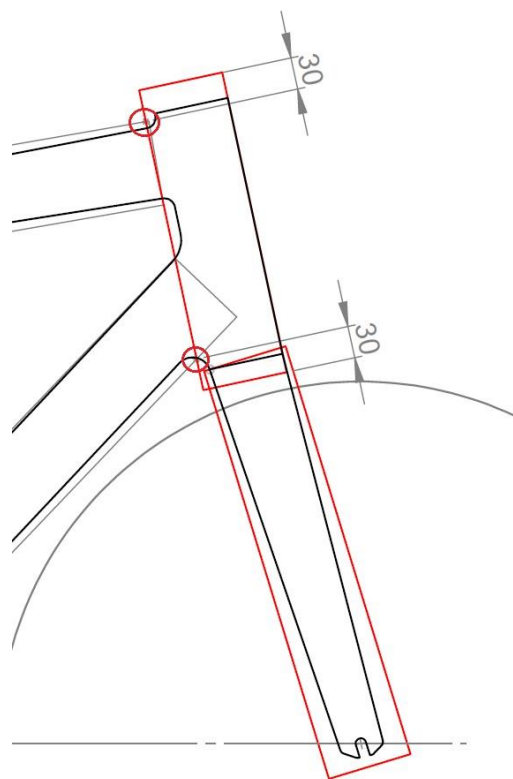


Figure 33: Illustration of the position of the boxes for a fork using a traditional internal steerer

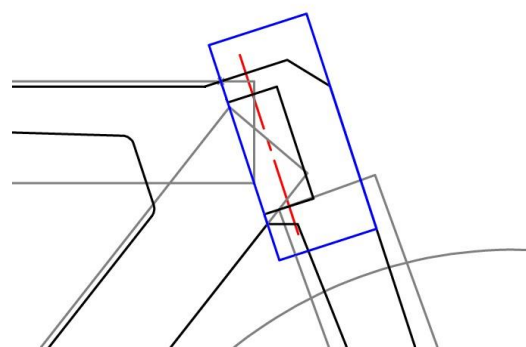


Figure 34: Illustration of the positioning of the axis of the head tube within the head tube box

Thus forks considered separately from the frame must be able to be covered entirely by the fork box in the case of a standard design forks, or by the fork box and the head tube box in the case of an offset forks. It is prohibited to use other frame boxes to cover the fork components.

A protuberance integrated with the fork crown, that serves as a stem or a support for the stem for the handlebars and handlebar extensions, is allowed but must be restricted to its original function. A diversion of use in the form of an added extension is prohibited.

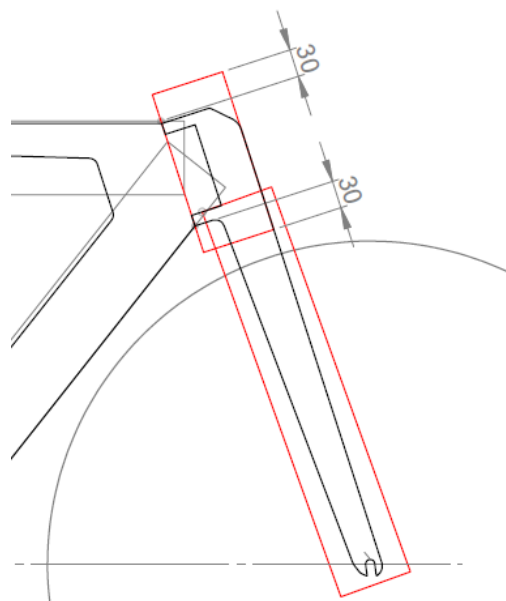


Figure 35: Illustration of the position of the boxes for offset forks

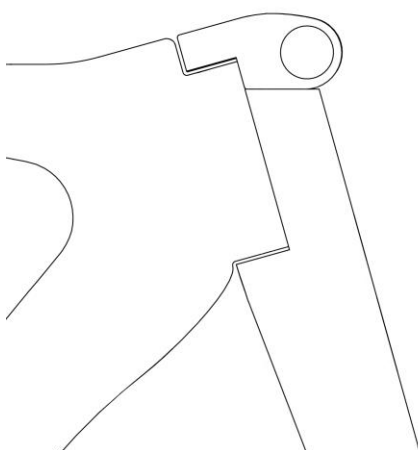


Figure 36: Illustration of a protuberance used as a stem.

## ARTICLE 1.3.022

*"In competitions other than those covered by article 1.3.023, only the traditional type of handlebars (see diagram «structure 1») may be used. The handlebars must be positioned in an area defined as follows: above, by the horizontal plane of the point of support of the saddle (B); below, by the horizontal line passing through the highest point of the two wheels (these being of equal diameter) (C); at the rear by the axis of the steerer tube (D) and at the front by a vertical line passing through the front wheel spindle with a 5 cm tolerance (see diagram «Structure (1A)»). The distance referred to in point (A) is not applicable to the bicycle of a rider who takes part in a sprint event on track (flying 200 m, flying lap, sprint, team sprint, keirin, 500 metres and 1 kilometre), but must not exceed 10 cm in relation to the vertical line passing through the front wheel spindle."*

The traditional type of handlebars must be used in road races, cyclo-cross and track races (apart from track time trials and pursuits). The attachment of any additional handlebar component or extension is prohibited in these events.

In no case shall the front of the handlebars exceed the tolerance of 5 cm in relation to a vertical line passing through the front wheel axle, which is the control zone of the bicycle. The more forward the handlebar is positioned, the less manoeuvrable the bicycle will be and the less it will be easy to react quickly to an obstacle or a wind gust. Moreover, this would result in moving the centre of gravity of the rider on the bicycle, which would increase even more the risks of loss of control. The area of positioning the handlebars is defined by the diagram below:

**Structure (1a)**

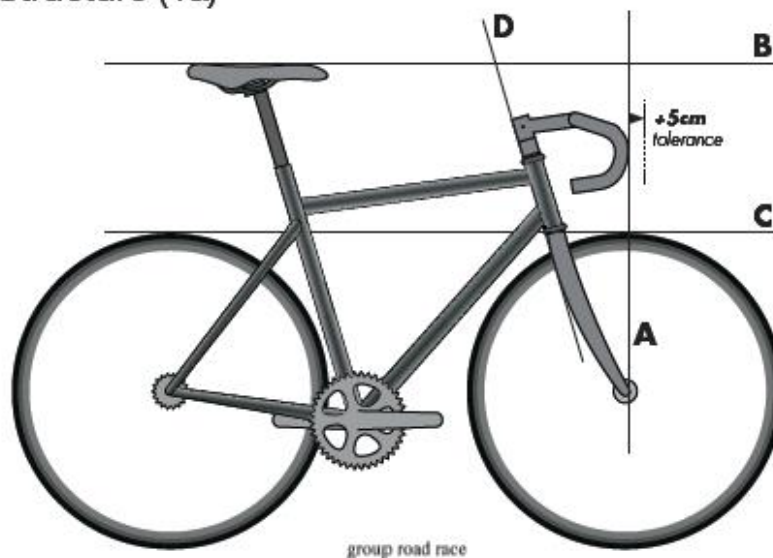


Figure 37: Illustration of the box, marked out by lines A, B, C and D, within which the handlebars must be fully contained.

In fast track races (sprint, team sprint, keirin, flying 200 m, flying lap) and time trial races (500 m, 1 km), if the position of the front edge of the handlebar is less than 5 cm forward the vertical line passing through the front wheel axis (instead of 10 cm allowed), then the bottom edge of the handlebar can be positioned below the horizontal line passing through the top of the wheels as long as the contact point with the hand is above this limit. This rule came into force on 1 January 2012 to enable small riders to have a regulatory position, taking into account the limited positioning possibilities allowed by the standardisation of the composite equipment.

*"The brake controls attached to the handlebars shall consist of two supports with levers. It must be possible to operate the brakes by pulling on the levers with the hands on the lever supports. Any extension to or reconfiguration of the supports to enable an alternative use is prohibited. A combined system of brake and gear controls is authorised."*

The bicycle must be fitted with a braking system that operates on both front and rear wheels in order to take part in a road or cyclo-cross event.

Electronic derailleurs are authorised in competition provided that they are controlled solely by the rider.

## ARTICLE 1.3.023

*"For road time trials and individual and team pursuit on the track, a fixed extension may be added to the steering system; in this instance, the height difference between the elbow support points and the highest and lowest points of the handlebar extension (including gear levers) must be less than 10 cm. It is also possible to add a handlebar extension for the 500 m and kilometre time trials on the track, but in this case, the position of the tip of the saddle must be at least 5 cm behind the vertical plane passing through the bottom bracket axle. The distance between the vertical line passing through the bottom bracket axle and the extremity of the handlebar may not exceed 75 cm, with the other limits set in article 1.3.022 (B,C,D) remaining unchanged. Elbow or forearm rests are permitted (see diagram «Structure (1B)»).*

*For road time trial competitions, controls or levers fixed to the handlebar extension may not extend beyond the 75 cm limit.*

*For the track and road competitions covered by the first paragraph, the distance of 75 cm may be increased to 80 cm to the extent that this is required for morphological reasons; «morphological reasons» should be taken as meaning anything regarding the size or length of the rider's body parts. A rider who, for this reason, considers that he needs to make use of a distance between 75 and 80 cm must inform the commissaires' panel at the time of the bike check.*

*For riders that are 190 cm tall or taller, the horizontal distance between the vertical lines passing through the bottom bracket axle and the extremity of the handlebar extensions including all accessories may be extended to 85 cm.*

*Only one exemption for morphological reasons may be requested; either the handlebar extension can be moved forward or the peak of the saddle can be moved forward, in accordance with Article 1.3.013."*

The handlebar extensions with all their accessories (controls, levers, etc. and all their mounting accessories) must be included within the maximum distance allowed from the bottom bracket axle. Any moving parts have to be placed in the most horizontal position that can remain unsupported through their range of movement.

To check, rotate the levers to the position that gives the maximum horizontal length and allow to rest, and then take the measurement allowed from the bottom bracket axle.

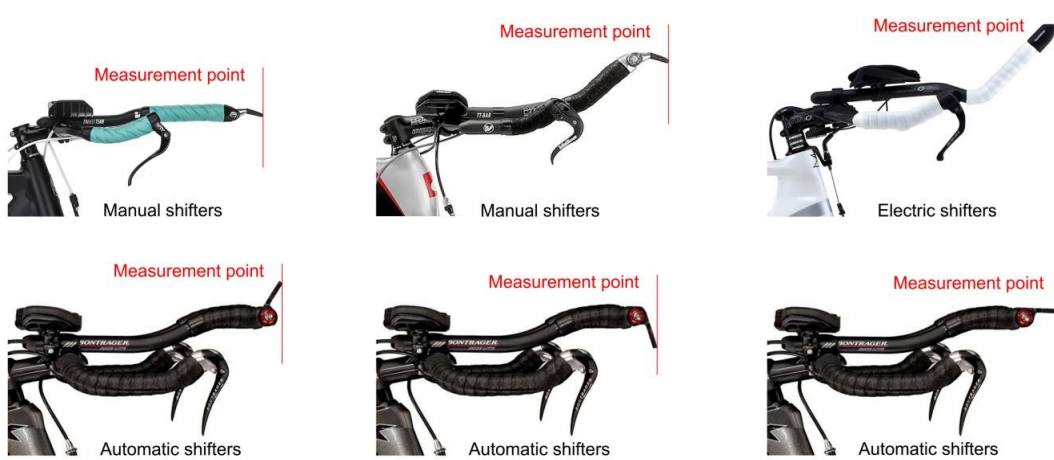


Figure 38: Points of measurement for the horizontal distance from the bottom bracket axle

The handlebar extensions plus any accessories (controls, levers, etc. and all their mounting accessories) must be within  $\pm 10$  cm from the level defined by the elbow/forearm supports. Any moving parts have to be placed in the most vertical position that can remain unsupported through their range of movement.

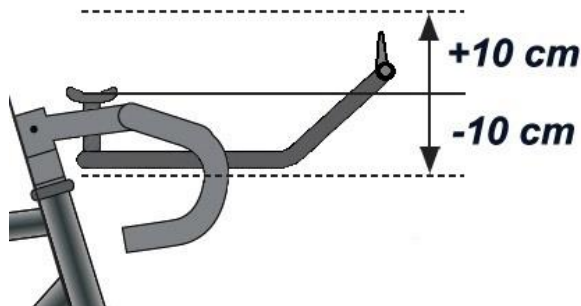


Figure 39: Illustration of the vertical limits of the handlebars extensions including accessories

To check, rotate the levers to the highest point and allow to rest, and then take the measurement for the +10 cm position. If necessary, rotate the lever to the lowest point and take the measurement for the -10 cm position. The measurements of the upper and lower limits are taken in the front half of the handlebar extensions.



Figure 40: Points of measurement for the vertical limits of the handlebars extensions and any accessories

## SITUATION FOR TRACK EVENTS

There are four different positions for track events:

- For sprint events (sprint, team sprint, keirin, flying 200 m, flying lap): the tip of the saddle can be advanced to the vertical plane passing through the centre of the bottom bracket and the handlebars can be advanced to 10 cm in front of the front wheel axle without an exemption for morphological reasons.
- For endurance races (points race, elimination race, scratch race and madison): the position is identical to that for road races and cyclo-cross events with the saddle withdrawn at least 5 cm behind a vertical plane passing through the centre the bottom bracket and a maximum advancement of the handlebars of 5 cm in front of the front wheel axle. An exemption for morphological reasons is possible for riders of small stature who want to bring the tip of the saddle forward up to the vertical plane passing through the centre of the bottom bracket.
- For pursuit events (individual pursuit, team pursuit): the position is identical to that for road time trials with the saddle withdrawn at least 5 cm behind a vertical plane passing through the centre of the bottom bracket and an advanced position for handlebar extensions of a maximum of 75 cm in front of the centre of the bottom bracket. An exemption for morphological reasons is possible for riders of small stature who want to bring the tip of the saddle forward up to the vertical plane passing through the centre of the bottom bracket. Furthermore, an exemption for morphological reasons is possible for riders of large stature who want to advance the handlebar extension to up to 80 cm in front of the centre of the bottom bracket. Only one exemption for morphological reasons is allowed per rider.
- For time trials (500 m or 1 km): The tip of the saddle can be advanced to the vertical plane passing through the centre of the bottom bracket and the handlebar extension can be positioned up to a maximum of 75 cm in front of the centre of the bottom bracket. An exemption for morphological reasons is possible for riders of large stature who want to advance the handlebar extension to up to 80 cm in front of the centre of the bottom bracket.

Riders in 500 m and 1 km time trials have to choose between adopting a sprint position or a pursuit position. It is no longer possible for a rider to advance the saddle position up to the vertical plane passing through the centre of the bottom bracket

while also advancing the handlebar extension to 80 cm ahead of the centre of the bottom bracket.

The chart below offers a summary of authorised positions for track events.

Guidon - Handlebar	Discipline - Discipline	Selle - Saddle	Guidon - Handlebar
Guidon standard Standard handlebar	Vitesse – Sprint	0 max	10 max
	Vitesse par équipes – Team sprint	0 max	10 max
	Keirin	0 max	10 max
	200m lance – Flying 200m	0 max	10 max
	Tour lance – Flying Lap	0 max	10 max
	Course aux points – Points race	-5 max (ou 0 max cause morphologique)	5 max
	Course élimination	-5 max (ou 0 max cause morphologique)	5 max
	Scratch	-5 max (ou 0 max cause morphologique)	5 max
	Madison	-5 max (ou 0 max cause morphologique)	5 max
	1Km / 500m / C.L.M. – Time Trial	0 max	10 max
Prolongateur Extension		-5 max (ou 0 max cause morphologique)	75 max (ou 80 max cause morphologique)
	Poursuite individuelle – Individual pursuit	-5 max (ou 0 max cause morphologique)	75 max (ou 80 max cause morphologique)
	Poursuite par équipes – Team pursuit	-5 max (ou 0 max cause morphologique)	75 max (ou 80 max cause morphologique)

Figure 41: Authorised positions for saddle and handlebars/handlebar extensions for track events

In fast track races (sprint, team sprint, keirin, flying 200 m, flying lap) and time trial races (500 m, 1 km), if the position of the front edge of the handlebar is less than 5 cm forward the vertical line passing through the front wheel axis (instead of 10 cm allowed), then the bottom edge of the handlebar can be positioned below the horizontal line passing through the top of the wheels as long as the contact point with the hand is above this limit. This rule came into force on 1 January 2012 to enable small riders to have a regulatory position, taking into account the limited positioning possibilities allowed by the standardisation of the composite equipment.

## ARTICLE 1.3.024

*“Any device, added or blended into the structure, that is destined to decrease, or which has the effect of decreasing, resistance to air penetration or artificially to accelerate propulsion, such as a protective screen, fuselage form fairing or the like, shall be prohibited.”*

Protective screens, fuselages, fairings or any other device that is added or blended into the structure, and that is destined or have the effect of reducing resistance to air penetration, are prohibited. Aerodynamic assemblies and protuberances on the head tube or elsewhere are prohibited.

### PROTECTIVE SCREEN

*“A protective screen shall be defined as a fixed component that serves as a windscreen or windbreak designed to protect another fixed element of the bicycle in order to reduce its wind resistance.”*

A protective screen, shown by the diagram below, is defined as a fixed element acting as a cover, screen or windbreak designed to protect another component of the bicycle in order to reduce its wind resistance. This device is prohibited in competition.

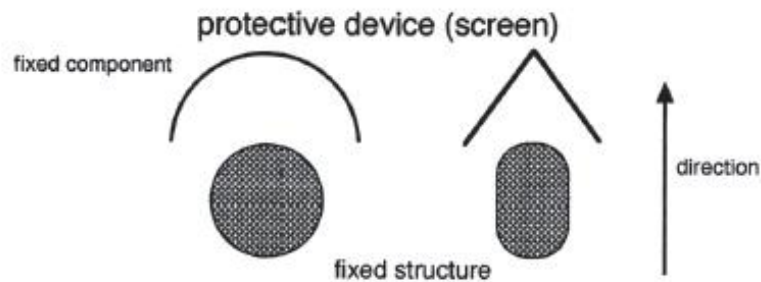


Figure 42: Illustration of a protective screen

The image below illustrates non-compliance – a cover added to the frame to conceal brake cables.



Figure 43: Cover added to frame to conceal brake cables

It is not permitted to place a cover over any bicycle component, as for example the chainring cover shown below.



Figure 44: Carbon cover added to chainring

Similarly, the addition of tape or any other cover to conceal screws or bolts on the bicycle, as shown in the photo below, is prohibited. The sole exceptions to this rule relate to rubber plugs protecting the screws that are provided by the frame manufacturer and the valve access hole of disc wheels that may be covered provided that the cover used is supplied by the wheel manufacturer (and no other party).



Figure 45: Illustration of the addition of tape to cover bolt access holes

The addition of a cover to a braking system, as shown in the image below, is authorised. The unit is considered to be integrated with the frame or fork.

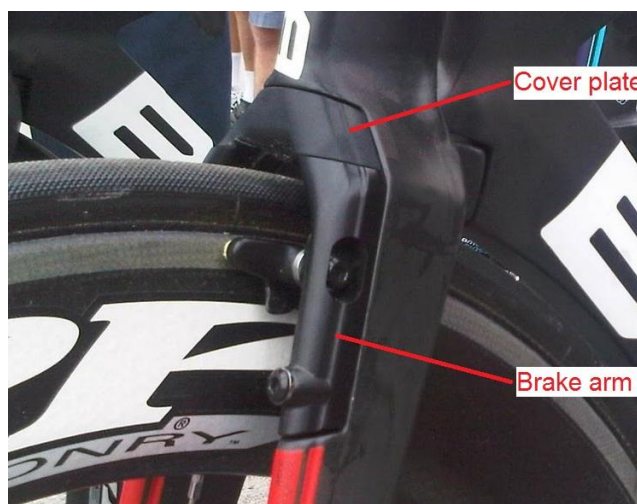


Figure 46: Brake integrated with the fork and fitted with a cover

The combination of the frame tube (or fork tube) + brake + cover must respect the 1:3 rule, as well as the minimum and maximum dimension rules and must be contained completely within the corresponding 8 cm box.

What is the "corresponding 8 cm box"?

- For rear brakes, attached to the seat stays/chain stays, the combination of the seat stay/chain stay tube + brake + cover must fit inside the 8 cm box of the seat stays/chain stays.
- There are two scenarios for front brakes :
  - For a standard fork (steerer tube inserted inside the head tube of the frame), if the cover does not extend to the stem, then the combination of the fork + brake + cover must fit inside the 8 cm box of the fork.

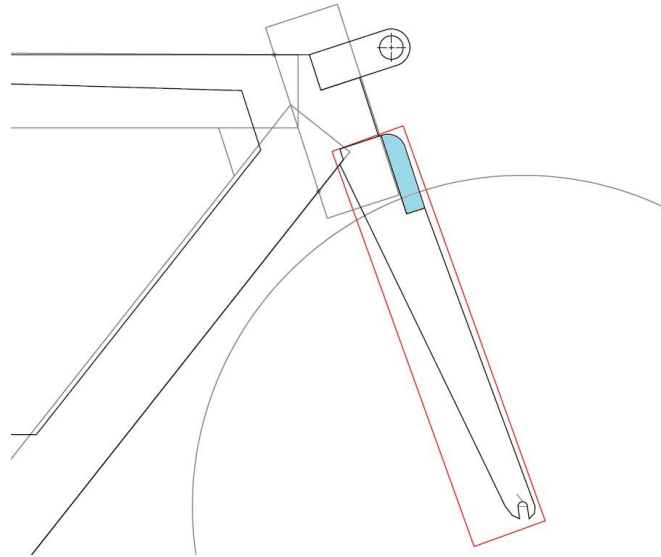


Figure 47: Illustration of a cover that fits over the brake only

- For an offset fork, or a standard fork with a cover over the brake that extends to the stem, then the combination of the fork + brake + cover must fit inside the 8 cm boxes of the fork and frame head tube.

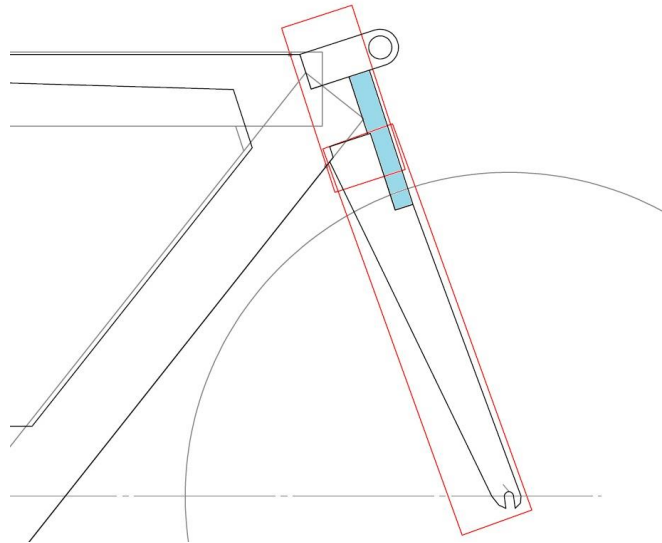


Figure 48: Illustration of a cover that fits over the brake and extends to the stem

With regards to covers over brakes, it is important to distinguish between the two different types of brake and the corresponding scenarios that apply :

- Brakes considered to be "standard": these are available on general sale and their shape and system of attachment allow them to be used on all types of frames and forks. These brakes, solely when a cover is fitted, must be contained within the corresponding 8 cm box, and are taken into consideration in the measurement of 1:3 ratios and minimum/maximum dimensions.
- Brakes considered to be "integrated", which are designed for a specific model of frame/fork and which can only be used with this frame/fork due to their shape or attachment system. These brakes, whether a cover is fitted or not, must in all cases be contained within the corresponding 8 cm box and are taken into consideration in the measurement of 1:3 ratios and minimum/maximum dimensions.

It should be noted that brake systems that are integrated or use a cover must be submitted to the UCI during the approval procedure for frames and forks, and in any case before use in competition.

## FUSELAGE

*"A fuselage form shall be defined as an extension or streamlining of a section. This shall be tolerated as long as the ratio between the length L and the diameter D does not exceed 3. This rule does not apply to frame and fork of the bicycle."*

The 3:1 rule applies to fuselage forms and is applicable to all elements of the bicycle which are frame and fork accessories (seat post, handlebars, handlebar extension, stem, elbow rests and handlebar extension risers) with the exception of moving parts (wheels and chainset), front and rear derailleur bodies, braking systems for wheels, saddle and pedals.

For frame accessories that are subject to the 3:1 rule, the minimum section dimension is 1 cm. Cranks are not subject to the 3:1 rule, but their width is restricted to 8 cm.

The 3:1 ratio acts as a regulatory factor.

The smallest section dimension possible is 1 cm (in any direction) for the frame and fork accessories subject to the 3:1 rule. Here are some examples:

- for the use of the maximum height authorised for an element, namely 8 cm, the minimum thickness is  $8/3 = 2.667$  cm;
- for the use of the minimum thickness authorised for an element, namely 1 cm, the maximum height is  $1 \times 3 = 3$  cm;
- for all intermediate options, the height to thickness ratio must not exceed 3.

The terms "height" and "thickness" should be understood to be the largest and smallest section dimensions of the tubes respectively, i.e. the maximum and minimum dimensions authorised in any direction.

However, the regulation on the subject of fuselage form (3:1 ratio) does not exempt manufacturers from complying with the prevailing official safety standards concerning uncovered projections (must be rounded for safety).

As for brake levers, derailleur controls, bottle cages and other items not subject to the 3:1 rule, "knife profile" shapes are not allowed.

For elements subject to the 3:1 rule, a tolerance of one millimetre is allowed when carrying out checks at events to account for the thickness of surface coatings (paint and sponsors' logos).

The addition of tape to modify the section of any equipment that is subject to the 3:1 rule to bring it into compliance is prohibited.

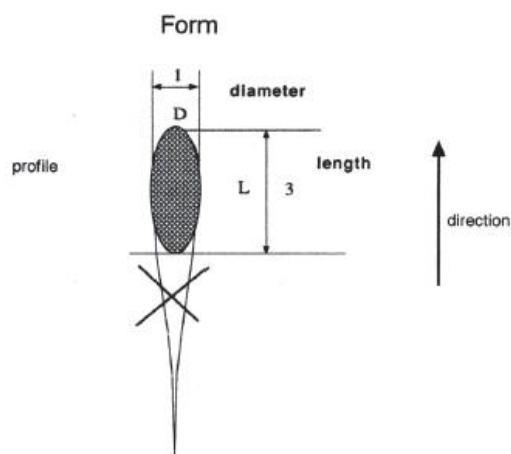


Figure 49: Illustration of the 3:1 rule restricting the fuselage form of elements

Regarding the seat posts, whether they be integrated or not to the frame, the 3:1 rule applies from a distance of 60 mm from the fixture of the saddle on the seat post.

## FAIRING

*"A fairing shall be defined as the use or adaptation of a component of the bicycle in such a fashion that it encloses a moving part of the bicycle such as the wheels or the chainset. Therefore it should be possible to pass a rigid card (like a credit card) between the fixed structure and the moving part."*

If the seat tube mirrors the curve of the wheel it must not enclose it. It must be possible to insert a credit card between the tube and the wheel as shown by the illustrations below.

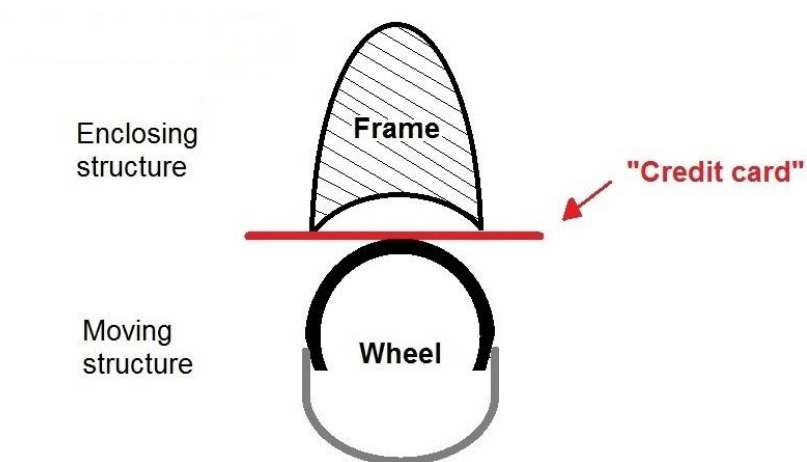


Figure 52: Illustration of wheel fairing



Figure 53: Insertion of a credit card between the wheel and frame to check that a fairing is not present

Similarly, the addition of a fairing to cover chainwheels, chains or any other moving part of the bicycle is prohibited.

**ARTICLE 1.3.024 BIS****BOTTLES**

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*"Bottles shall not be integrated to the frame and may only be located on the down and seat tubes on the inside of the frame. The dimensions of the cross sections of a bottle used in competition must not exceed 10 cm or be less than 4 cm and their capacity must be a minimum of 400 ml and a maximum of 800 ml."*

The last few years, bottles were increasingly moving away from their original function of allowing riders to rehydrate towards an alternative use as aerodynamic elements which are integrated into the design of frames in order to improve riders' performances. It became essential to regulate the positioning and dimensions of bottles in order to avoid any deviations and to return bottles to their principal function.

Article 1.3.024 bis has come into effect on 1 January 2013. Since that date, bottles are only allowed to be positioned on the down tube and seat tube. It is possible to use a bottle of each of these tubes, but the bottle cannot be positioned at the same time to the two tubes. Locating bottles behind the saddle, on the stem, or in any other position is then prohibited. Furthermore, it is not allowed to integrate bottles with frames, meaning that there must be a space between the bottle and the tube to which it is attached. Similarly to the rule on the wheel fairing, it should be possible to pass a rigid card (like a credit card) between the bottle and the tube to which it is attached.

The rule specifies the bottle dimensions in order to avoid empty bottles being added solely for reasons of aerodynamics. The rule also improves the rider's ability to access and grasp the bottle. It is forbidden to place an empty bottle (without any liquid) on the bicycle.

The illustration below shows a bottle that complies with the current regulations with thickness of between 4 cm and 10 cm. The minimum dimension of 4 cm does not apply to the bottle cap, the area where the cap is attached to the bottle (shown in blue) and 30 mm wide areas from the neck and base of the bottle. The dimensions are measured perpendicular to the axis of the fluid exit direction (i.e. parallel to the cap threading direction) along the length of the bottle.

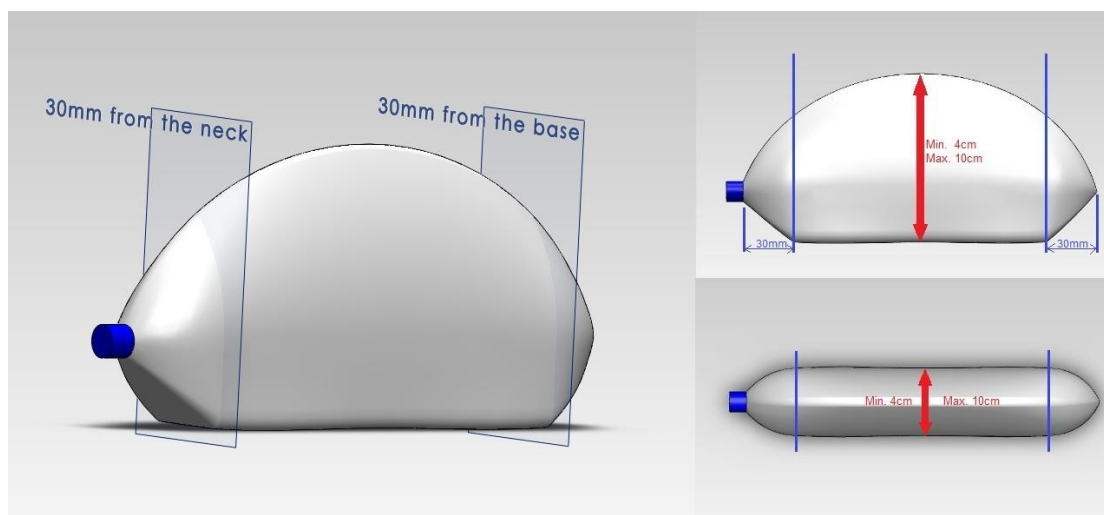


Figure 54: Illustration of the areas of a bottle where the dimensions are subject to regulations

Finally, the capacity is also specified in order to guarantee that bottles are used for rehydration purposes and to prevent any deviations. If bottles with a volume in excess of 500 ml are used, it is recommended that the bottle attachment system should be checked to ensure that it can bear a weight in excess of 0.5 kg.

## CAMELBACK

Hydration is an essential physiological consideration for athletes during a physical effort. Neither bottles nor camelback systems should diverge from their original function.

There is a significant risk of camelback systems or any similar devices being used for other purposes than their original function. For this reason certain restrictions apply if they are to be used in competition:

- The camelback system is authorised for competition solely for the purpose of rehydrating the rider.
- It must not be the case that the system, presented as a way of improving a rider's hydration during an effort, is accompanied by a "aerodynamic clothing" advantage, in this way deflecting the camelback system from its original function.
- The liquid container must not be capable of holding more than 0.5 litres and must not be a rigid shape liable to be considered as a device for improving the rider's aerodynamic qualities.
- The use of the camelback system must not modify the rider's morphology and must thus be directly attached against the body.
- It is recommended that this equipment should be presented to commissaires before the start of the event in order to avoid any risk of illegal use and disqualification.

Following many problems on the positioning of the camelback systems during the 2011 season, the UCI decided to take additional measures which came into force on 1 April 2012:

- The use of the camelback system is only allowed on the back of the rider.
- It is mandatory for all riders who want to use a camelback system to present it to the commissaires before the start of the race at the risk of being disqualified.



Figure 55: Example of the use of a non compliant camelback system

## ARTICLE 1.3.024 TER

*"Any bicycle may be fitted with onboard technology equipment that has the ability and purpose to collect or transmit data, information or images. Such equipment shall comprise telemetry and transponder units and video cameras. Bicycles may be fitted with such equipment under the following conditions:*

- The system to install the equipment must be designed for use on bicycles and shall not affect the certification of any item of the bicycle;*
- The system to install the equipment must not allow the equipment to be removed during the race and the equipment will be considered non-removable;*
- The rider must not have any direct access to the images or information concerning other riders being collected or transmitted during the race.*

*Compliance with the aforementioned conditions and provided all other provisions of the UCI Regulations are respected, means that the use of onboard technology is authorised but does not imply that the UCI undertakes any responsibility for it. The UCI shall not be liable for any consequences deriving from the installation and use of onboard technology by licence holders, nor for any defects it may hold or its non compliance.*

*This article and the requirements contained herein do not apply to removable computers / rider information systems.*

*Notwithstanding the above, articles 4.3.014 or 6.1.060 remain fully applicable with regard to the use of onboard technology equipment."*

This article defines the terms of the onboard technology equipment which has the ability to collect or transmit data, information or images on the bicycles (transponder, camera, gps, telemetry system...).

Such equipments are no longer considered as technological innovations in the sense of the article 1.3.004.

Moreover, as these equipments must be non-removable, they are considered as an integral part of the weight of the bicycle, as defined in the article 1.3.019. They will be left on the bicycle during a minimum bicycle weight check done by the Commissaires.

## ARTICLE 1.3.025

*"Freewheels, multiple gears and brakes are not permitted for use on the track during competition or training. Disc brakes are allowed in cyclo-cross training and competition.*

*For races on the road and cyclo-cross, the use of fixed sprocket is forbidden: a braking system that acts on both wheels is required."*

Article 1.3.026

*"When competing, all riders shall wear a jersey with sleeves and a pair of shorts, possibly in the form of a one-piece skinsuit. By shorts it is understood that these are shorts that come above the knee. Sleeveless jerseys shall be forbidden.*

*However, for downhill and 4-cross mountain bike events, BMX, trials and indoor cycling, specific provisions are laid down in the part of the regulations concerning the discipline in question."*

## ARTICLE 1.3.026

*« When competing, all riders shall wear a jersey with sleeves and a pair of shorts, possibly in the form of a one-piece skinsuit. By shorts it is understood that these are shorts that come above the knee. Sleeveless jerseys shall be forbidden.*

*However, for downhill and 4-cross mountain bike events, BMX, trials and indoor cycling, specific provisions are laid down in the part of the regulations concerning the discipline in question. »*

By jersey with sleeves it is understood a jersey that leaves hands not covered. Consequently, integrated gloves in a jersey or a skinsuit are prohibited.

## ARTICLE 1.3.027

*"Jerseys shall be sufficiently distinct from world champions', UCI cup and classification leaders' and national jerseys to avoid confusion."*

## ARTICLE 1.3.028

*"Save in cases expressly provided for in the regulations, no distinctive jersey may be awarded or worn."*

## ARTICLE 1.3.029

*"No item of clothing may hide the lettering on the jersey or the rider's identification number, particularly in competition and at official ceremonies."*

## ARTICLE 1.3.030

*"Rain capes must be transparent or made to look like the jersey."*

## ARTICLE 1.3.031

**1.** *"Wearing a rigid safety helmet shall be mandatory during competitions and training sessions in the following disciplines: track, mountain bike, cyclo-cross, trials and BMX, para-cycling, as well as during cycling for all events."*

**2.** *During competitions on the road, a rigid safety helmet shall be worn.*

*Except where legal provisions determine otherwise, riders taking part in UCI WorldTour events may, at their own risk, refrain from wearing a helmet during individual time trial races taking place entirely on a mountainous course. Every discussion regarding the qualification «entirely on a mountainous course» will be decided by the commissaires' panel.*

**3.** *Each rider shall be responsible for:*

- ensuring that the helmet is approved in compliance with an official security standard and that the helmet can be identified as approved;*
- wearing the helmet in accordance with the security regulations in order to ensure full protection, including but not limited to a correct adjustment on the head as well as a correct adjustment of the chin strap;*
- avoiding any manipulation which could compromise the protective characteristics of the helmet and not wearing a helmet which has been undergone manipulation or an incident which might have compromised its protective characteristics;*
- using only an approved helmet that has not suffered any accident or shock;*
- using only a helmet that has not been altered or had any element added or removed in terms of design or form."*

It is prohibited to add a detachable cover to a helmet. The composition of the helmet material and its surface condition are not subject to any regulations. However, additions to the helmet are not allowed (cover, tape, etc.). The use of mechanical or electronic systems in or on the helmet is also prohibited.

It is obligatory to wear a helmet for safety reasons and no modifications to the helmet are allowed. The helmet must be approved in accordance with the prevailing safety standards, must not have been modified and must not have suffered an impact or been involved in an accident.

Add-on helmet visors are authorised provided that they are supplied by the helmet manufacturer.

## ARTICLE 1.3.032

*[abrogated].*

## ARTICLE 1.3.033

*"It is forbidden to wear non-essential items of clothing or items designed to influence the performances of a rider such as reducing air resistance or modifying the body of the rider (compression, stretching, support).*

*Items of clothing or equipment may be considered essential where weather conditions make them appropriate for the safety or the health of the rider. In this case, the nature and texture of the clothing or equipment must be clearly and solely justified by the need to protect the rider from bad weather conditions. Discretion in this respect is left to the race commissaires.*

*The use of shoe covers is prohibited during events on a covered track.*

*Equipment (helmets, shoes, jerseys, shorts, etc.) worn by the rider may not be adapted to serve any other purpose apart from that of clothing or safety by the addition or incorporation of mechanical or electronic systems which are not approved as technical innovations under article 1.3.004."*

Garments must not be adapted in any way such that they diverge from their use purely as clothing. The addition of any non-essential element or device to clothing is prohibited. The use of mechanical or electronic systems with clothing is prohibited.

It is also prohibited to wear clothing or skinsuits to which non-essential elements have been added with a view to improving their aerodynamic properties such as, for example, "wings" under the arms or an extension between the helmet and the jersey or skinsuit. It is obligatory for clothing to follow the cyclist's body shape.

From 1 October 2012, the use of shoe covers is prohibited for track events held at an indoor velodrome as their use is purely for aerodynamic purposes and does not offer any benefits to the riders' health or safety.

Shoes that have been made more aerodynamic by the addition of a non-essential element or by a modification to the toe or heel are prohibited from competition. No part of the shoe should extend above ankle height.

The socks and shoe covers used in competition must not extend above the middle of the leg. Ankle socks are also allowed unlike long socks like illustrated bellow.



Figure 56: Examples of long socks that do not comply with competition regulations

Gloves used in track competition must not be mittens that only have one, two or three separations between the fingers.



Figure 57: Example of a mitten forbidden in track competition

## ARTICLE 1.3.034

"During competitions, riders' attendants may not bear any advertising matter on their clothing other than that authorised for their team's riders for the race in question."