

## CLARIFICATION GUIDE OF THE UCI TECHNICAL REGULATION

17.01.2021 version

As the summit organization 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.

### Section 1 : general provisions

#### § 1 Principles

##### **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technical regulations, allowing the rider to adopt, without difficulty or risk, the required positions (support points, withdrawn saddle position, hands on the handlebars, position of handlebar extensions, etc.).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 put at disposal on the UCI website the list of homologated Road, Time-Trial, Cyclo-cross, Track ~~frames and forks~~ framesets (frame, fork, seat post and the frame components between the head tube and the handlebar stem) as well as the Cyclo-cross and road wheels 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. The other material items don't need to be homologated but must respect article 1.3.006 obligations.

**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 all relevant ISO quality and safety requirements for bicycles (as referenced for illustration purposes in the Clarification Guide published on the UCI website) as well as any other standards applicable in the country of the event.”*

*“The licence-holder shall use the equipment which is certified and compliant with quality and safety standards as provided by the manufacturer, without any modification whatsoever. The licence-holder shall be entirely and exclusively liable for any modification made to the equipment, in particular in the event of an incident, and may be subject to disciplinary sanctions in accordance with the UCI Regulations.”*

*Updated on 01.01.19*

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 ISO 4210 Standard on safety that applies to cycling equipment. They should refer to this Standard before modifying or adjusting any bicycle component. From 2019, all the ~~frames and forks~~ framesets submitted to the UCI for approval will have to join a certification confirming the compliance with the ISO 4210 security norm. The certification template is available in the section « Equipment » of the UCI website.

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 or meeting the 3:1 rule by adding tape to handlebars. No modification of equipment that is not conducted by the manufacturer is authorized by the UCI without prior approval.

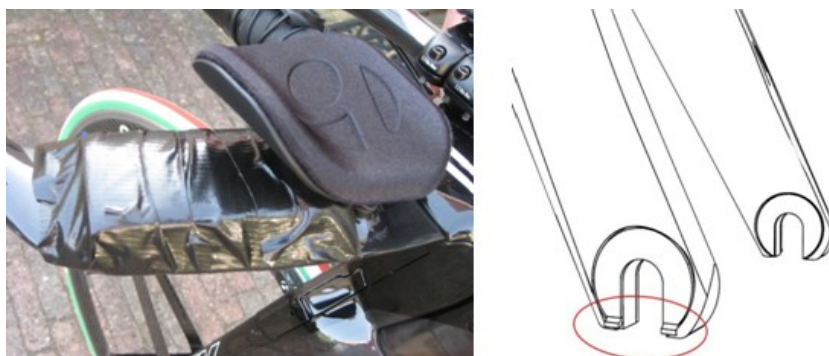


Figure 1: Examples of the prohibited modification of equipment (addition of tape, filing off fork drop-out safety lugs)



Figure 2: Example of the prohibited modification of equipment (the carbon cover added to the chainring)

The addition of handlebar tape to improve a rider's grip and any addition of adhesive tape to maintain, avoid abrasion, provide visual continuity or any other function is authorized in condition when it does not constitute an excrescence or enlarges the general shape of equipment.



Figure 3: Example of application the adhesive tape on the Time Trial disc wheel



Figure 4: Illustration of the addition of the adhesive tape to cover bolts access

## 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 and technical requirements. Where required, checks on equipment and material may be carried out, before, during or 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 seize equipment for a subsequent check, if necessary before, during or after the race, irrespective of whether the equipment was used during the competition.*

*If the seized equipment is found not to comply with the requirements of the UCI Regulations, the UCI may retain such item of equipment until the conclusion of any related disciplinary proceedings.”*

## ARTICLE 1.3.003 BIS

*“Evading, refusing or failing to allow or enable a commissaire or other competent body to conduct an equipment check shall be sanctioned as follows:*

*Rider or other team member: suspension of between one month and one year and/or a fine of between CHF 1’000.- and CHF 100’000.-*

*Team: suspension of between one and six months and/or a fine between CHF 5’000 and CHF 100’000”*

## § 2 Technical innovations

### 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.

## § 3 Commercialisation

### ARTICLE 1.3.006

*“Equipment shall be of a type that is sold for use by anyone practicing 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.*

*When assessing a request for use of equipment which is not yet available for sale, 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.*

*Upon expiry of the authorized period of use of a prototype (equipment not yet available for sale), any item of equipment must be commercially available in order to be used in cycling events. The requirement of commercial availability shall be understood as equipment having to be available through a publicly available order system (whether with manufacturer, distributor or retailer). Upon an order being placed, the order shall be confirmed within 30 days and the relevant equipment shall be made available for delivery within a further 90-day deadline. In addition, the retail price of the equipment shall be publicly advertised, shall not render the equipment de facto unavailable to the general public and shall not unreasonably exceed the market value for equipment of a similar standard.*

*Any equipment which is not commercially available and is not authorised (not authorised by UCI Equipment Unit or authorised period expired), may not be used in cycling events governed by the UCI Regulations. Any such unauthorised use of equipment may be sanctioned by disqualification of results obtained when using the equipment and/or a fine ranging from CHF 5'000 to 100'000."*

*Text modified on 15.10.18*

The entire used material must be accessible to all participants. All the components 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. If such a deadline is requested and accepted by the UCI, 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.

It is also demanded to have reasonable prizes, meaning comparable to a similar product of a same range.

## Section 2 : bicycles

### § 1 Principles

#### **ARTICLE 1.3.007**

*"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. Exceptions to this rule may exist for certain cycling disciplines, in which case specific rules are provided for in the respective discipline."*

*Text modified on 01.01.19*

The bicycle is a vehicle with two wheels which must be of equal diameter. Exception for MTB where the two wheels can be of a different 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 1.3.008**

*“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 authorized in order to ensure fairness in competition.

**ARTICLE 1.3.009**

*“The bicycle should have handlebars which allow it to be ridden and maneuvered 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 tire 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 authorized provided that their attachment to the bicycle does not contravene any regulations (brake hoods must not become extensions, etc.). Disc brake systems are authorized.

**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.”*

*Exceptions to this rule may exist for certain cycling disciplines, in which case specific rules are provided for in the respective discipline.*

*In para-cycling, mechanical prostheses/orthopedic 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/orthopedic brace for the lower limbs be used outside para-cycling events.”*

*Text modified on 01.01.19*

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. Exception for the E-MTB discipline. The use of an electronic unit solely to change gears is authorized 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 authorization from the integration procedure.

## § 2 Technical specifications

### 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, BMX Freestyle, trials, indoor cycling and paracycling for riders with disabilities are set out in the part regulating the discipline in question.”*

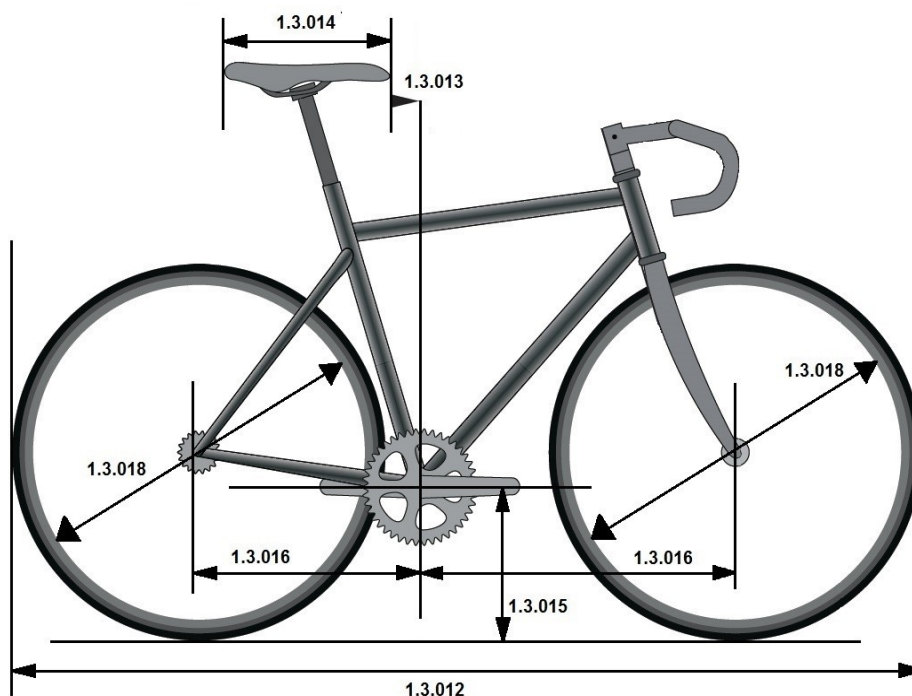


Figure 5: Illustration of the parts of the bicycle covered by Articles 1.3.011 to 1.3.025

**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 authorized 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.*

*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 center 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 6. 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 6: 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 center is too short, this will reduce the bicycle's stability whereas if the front or rear center is too long the bicycle will be less manoeuvrable.

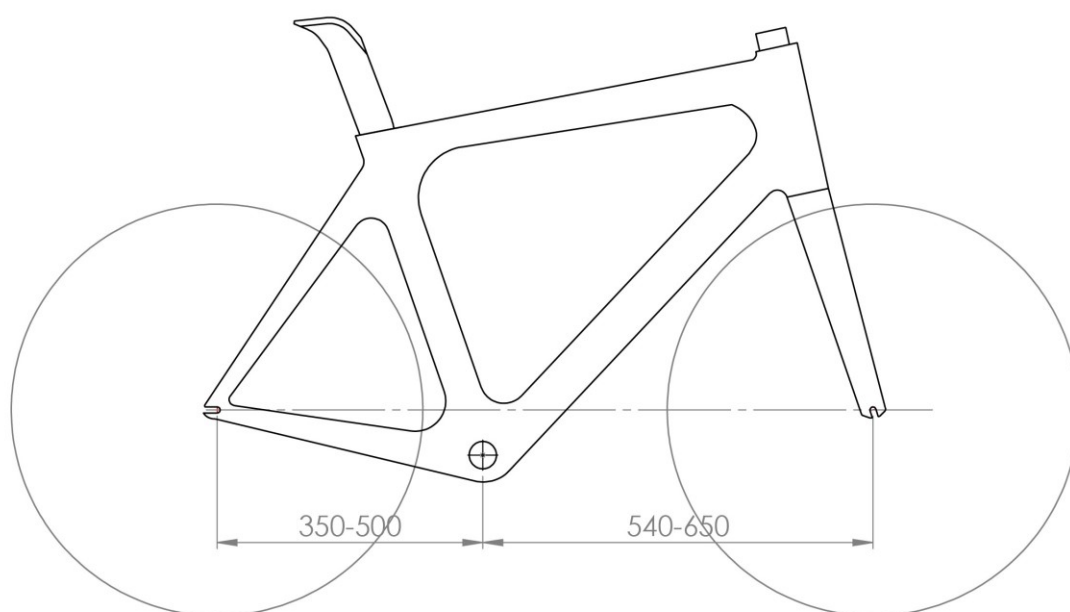


Figure 7: Illustration of the minimum and maximum distances between the bottom bracket and front and rear wheel axles

#### 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.”*

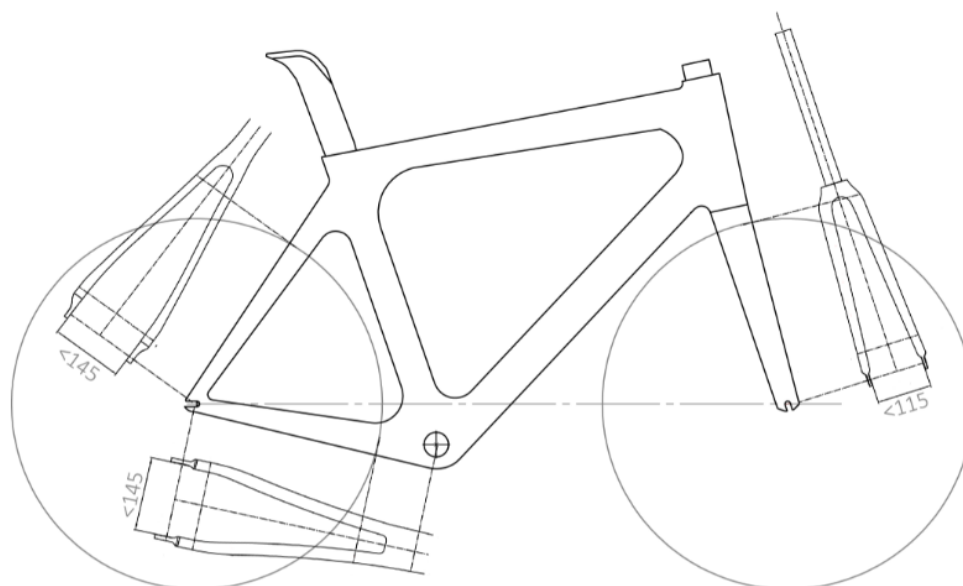


Figure 8: Illustration of the maximum distances between the fork drop-outs and rear drop-outs

## 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 Method 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, including motor-pacing the use of a front disc wheel is only permitted in the specialties 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 authorized 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 9: Measuring the weight of a bicycle

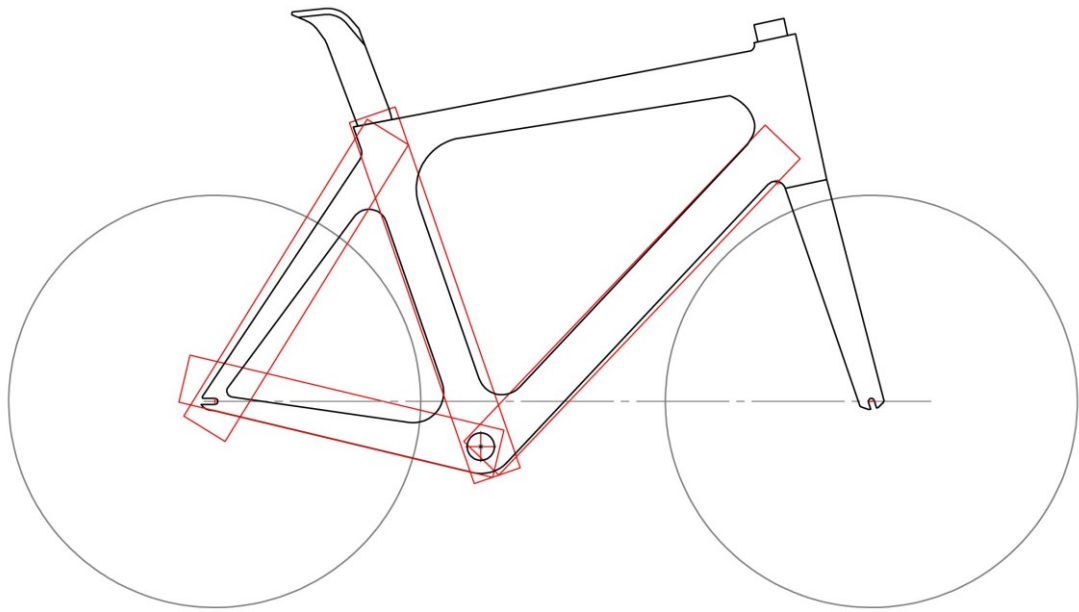
## ARTICLE 1.3.020

### TRIANGULAR SHAPE

*"For road, **track**, 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 10: 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 11: Example geometry of a bicycle that does not comply with UCI regulations*

## COMPENSATION TRIANGLES AND THE 16CM REINFORCEMENT ZONE

*"Isosceles compensation triangles with two 8 cm sides are authorized at the joints between frame elements except at the joints between the chain stays and seat stays where triangles are not authorized."*

*The effective width of the head tube zone may not exceed 16 cm at the narrowest point between the inner join of the top tube and down tube and the front of the box for the head tube."*

Authorized 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 areas (rectangular boxes, compensation triangles and the 16 cm reinforcement zone), but in no case cross these limits.

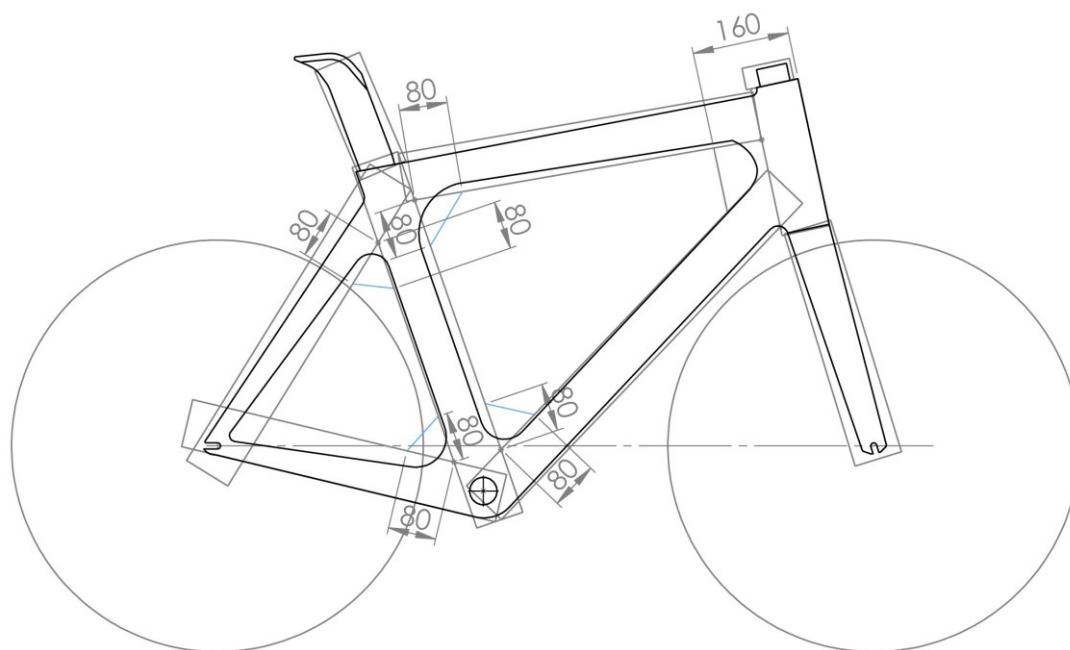


Figure 12: General illustration of compensation triangles and boxes

Reinforcement triangles with 8 cm sides are authorized 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.

The 16 centimeters 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 maneuver 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.

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 (shown Figure 13), 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.

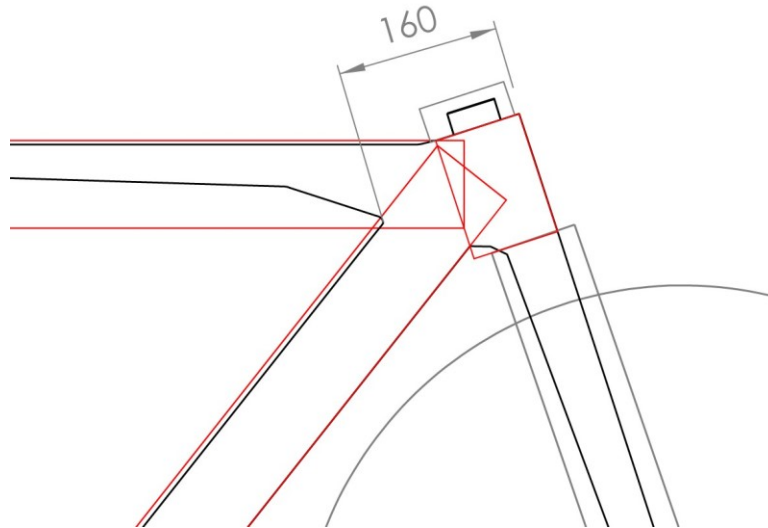


Figure 13: Illustration of the 16cm rule

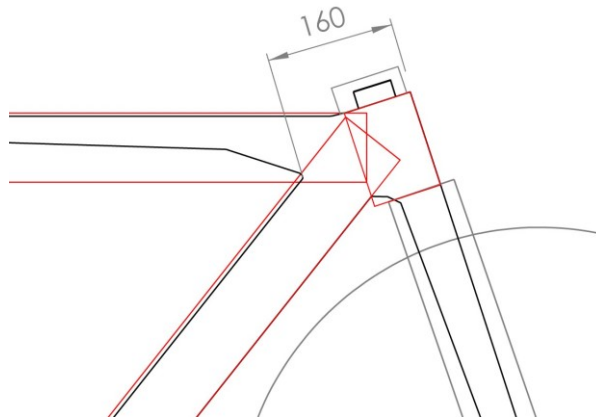


Figure 14: Illustration of the maximum distance of 16 cm for a small frame size (A)

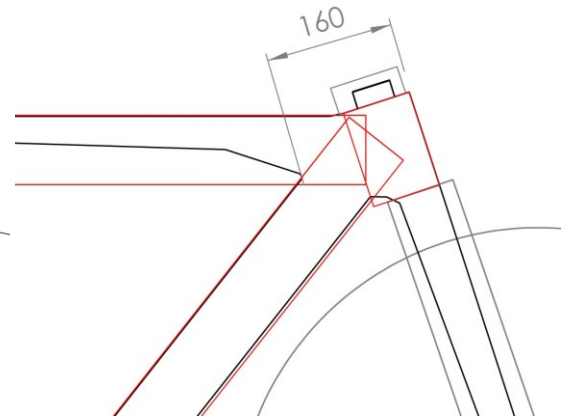


Figure 15: Illustration of the maximum distance of 16 cm for a small frame size (B)

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 16. In this configuration, no compensatory joint zone can be added to the boxes behind the head tube.

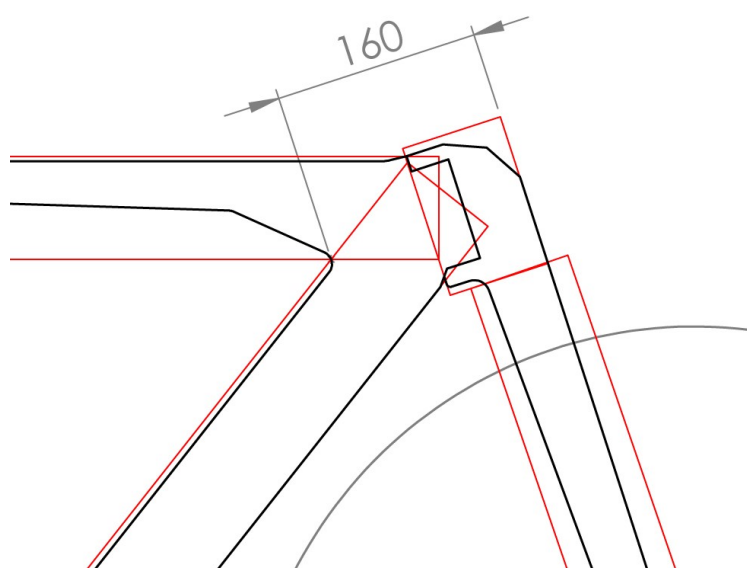


Figure 16: Illustration of the limit case

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 17.

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.

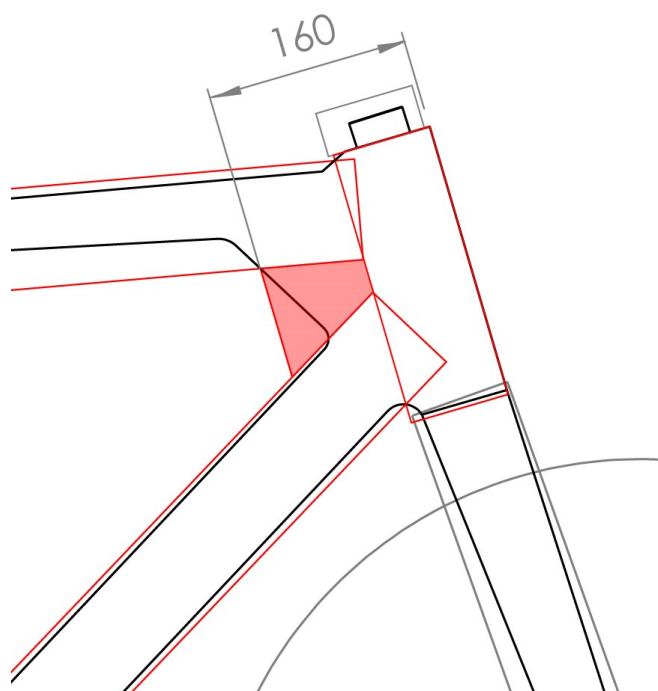


Figure 17: Illustration of the compensatory joint zone

## 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."*

The frame tubes must be tubular without 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 each of these lines is shown on the diagram below.

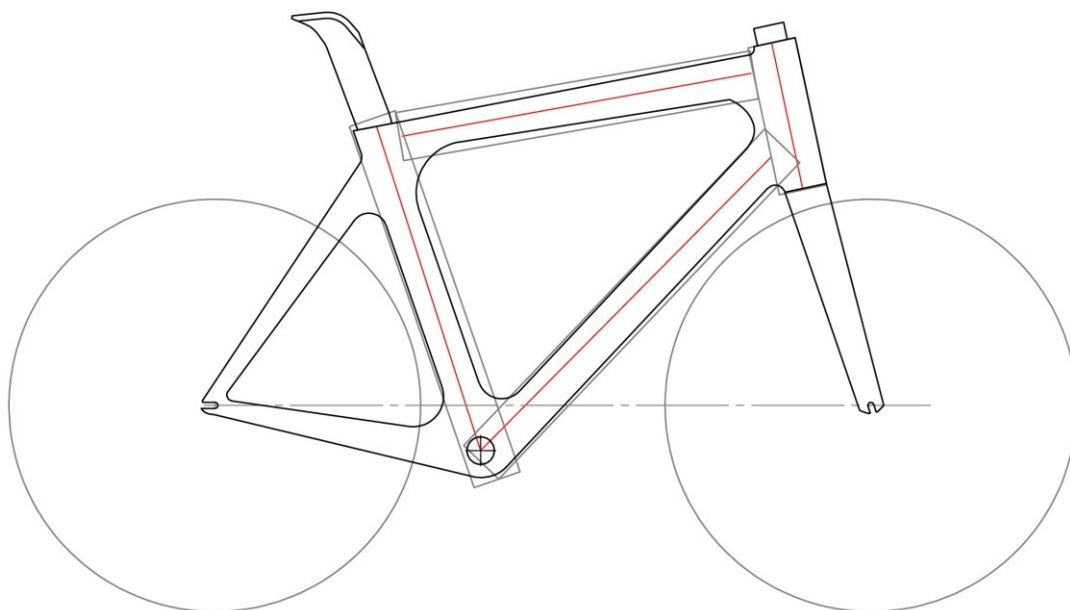


Figure 18: Illustration of the start and finish points of the straight lines required inside tubes

The start and finish points of the lines inside 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 center of the bottom bracket to the intersection of the rear of the head tube box with the down tube.
- Seat tube: from the center 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 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 seat post shall comply with the dimensional restrictions that apply to the seat tube and may be attached to the frame anywhere on the seat tube and/or top tube. Additional frame components can be added between the head tube and the handlebar stem. These must be inside the dimension of the head tube box."*

The ~~frame and forks~~ frameset must be able to fit entirely within the template formed by ~~seven~~ nine rectangular boxes of 80 mm width, the 16 cm reinforcement zone and the compensation triangles as shown by the diagram below. The seat post (8) must be able to fit entirely within its own rectangular box of 80 mm width. The upper line of the box must pass at most 60 mm from the fixture of the saddle on the seat post, Figure 20. Additional frame components between the head tube and the handlebar stem which are not covered by the head tube box and/or the top tube box must be able to fit within their own rectangular component box (9) of 80mm width. Altogether, the additional frame components between the head tube and the handlebar stem cannot exceed dimensional restrictions of the head tube box. During the transition stage, this restriction does not apply to additional frame components between the head tube and the handlebar stem which, on 1 January 2021, are/were already at the production stage.

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 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 Articles 1.3.022 and/or 1.3.023.

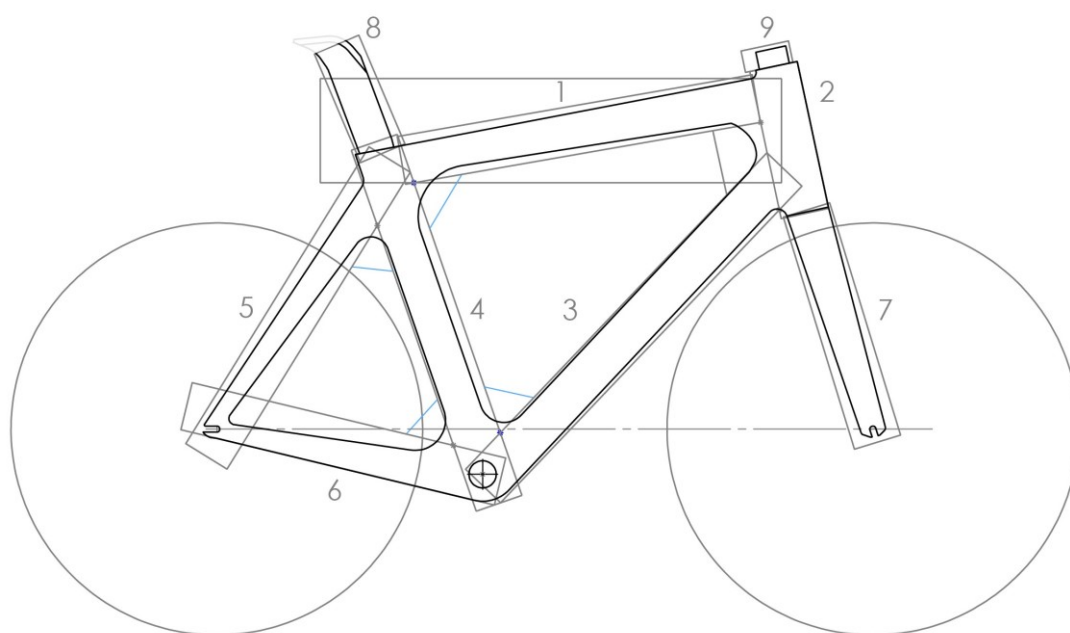


Figure 19: General illustration of the shape and positioning of the 8 cm boxes



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 positioned in the same axis as the steerer tube.

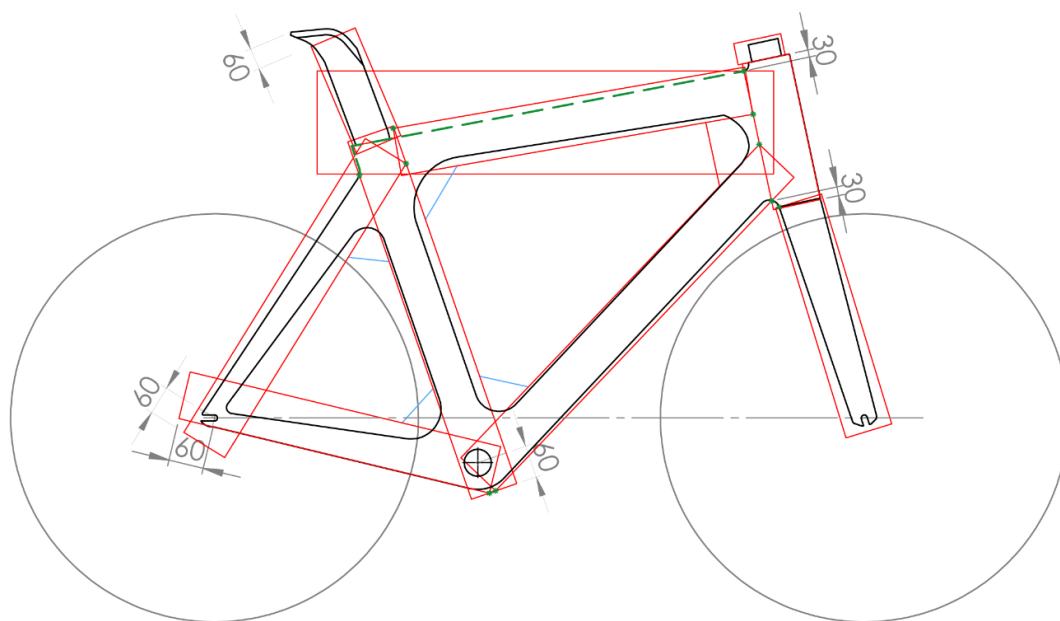


Figure 20: Illustration of the template showing the start and finish points of the 8 cm boxes for each element

The start and finish points of the 8 cm boxes 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 upper 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 seat tube must not surpass the upper line of the top tube except in the situation where the seat post extends from the upper line of the seat tube;** the lower line of the box must not be located in excess of 60 mm below the bottom bracket center.
- 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 center.

- 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 center.
- 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.
- Seat post: the seat post must be attached at least with one point of contact with the seat tube and/or top tube in the highlighted area (green). The start of the area: point of intersection of the upper line of the top tube with the rear line of the head tube box. The end of the area: point of intersection of the rear line of the seat stay with the rear line of the seat tube. The upper line of the box must pass at most 60 mm from the fixture of the saddle on the seat post. The front and rear lines of the seat post must not pass through any frame elements completely.
- Additional frame component between the head tube and the handlebar stem: the lower line of the box must be collinear with the upper line of the head tube box; the upper line of the box can be positioned at the desired height provided that the component is entirely contained within the box.

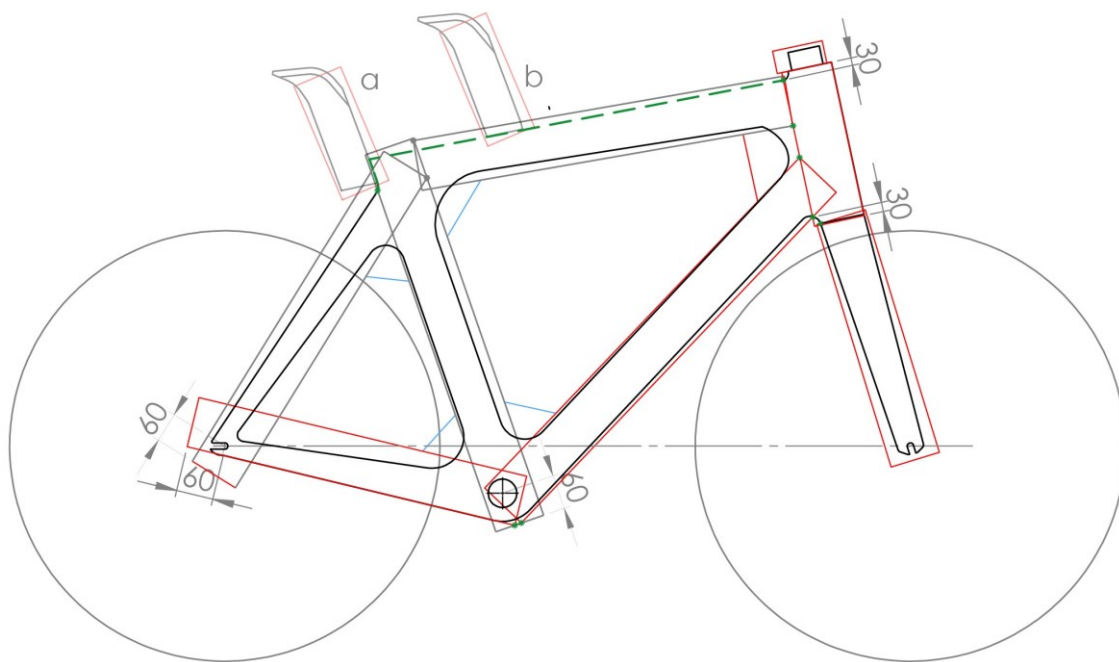


Figure 21: Illustration of the positioning of the seat post box

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 22, 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.

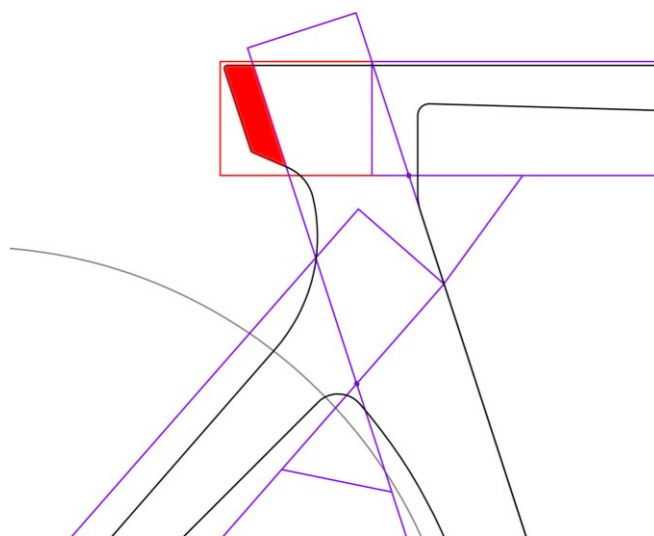


Figure 22: Illustration of the unauthorized extension of the top tube box behind the seat tube

## TUBE DIMENSIONS

*"The maximum height of the elements shall be 8 cm and the minimum thickness 1 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 authorized in any direction. Thus, the maximum dimension of the section of elements is 8 cm while the minimum dimension is 1 cm.

A tolerance of one millimeter is allowed for frame elements 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.

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

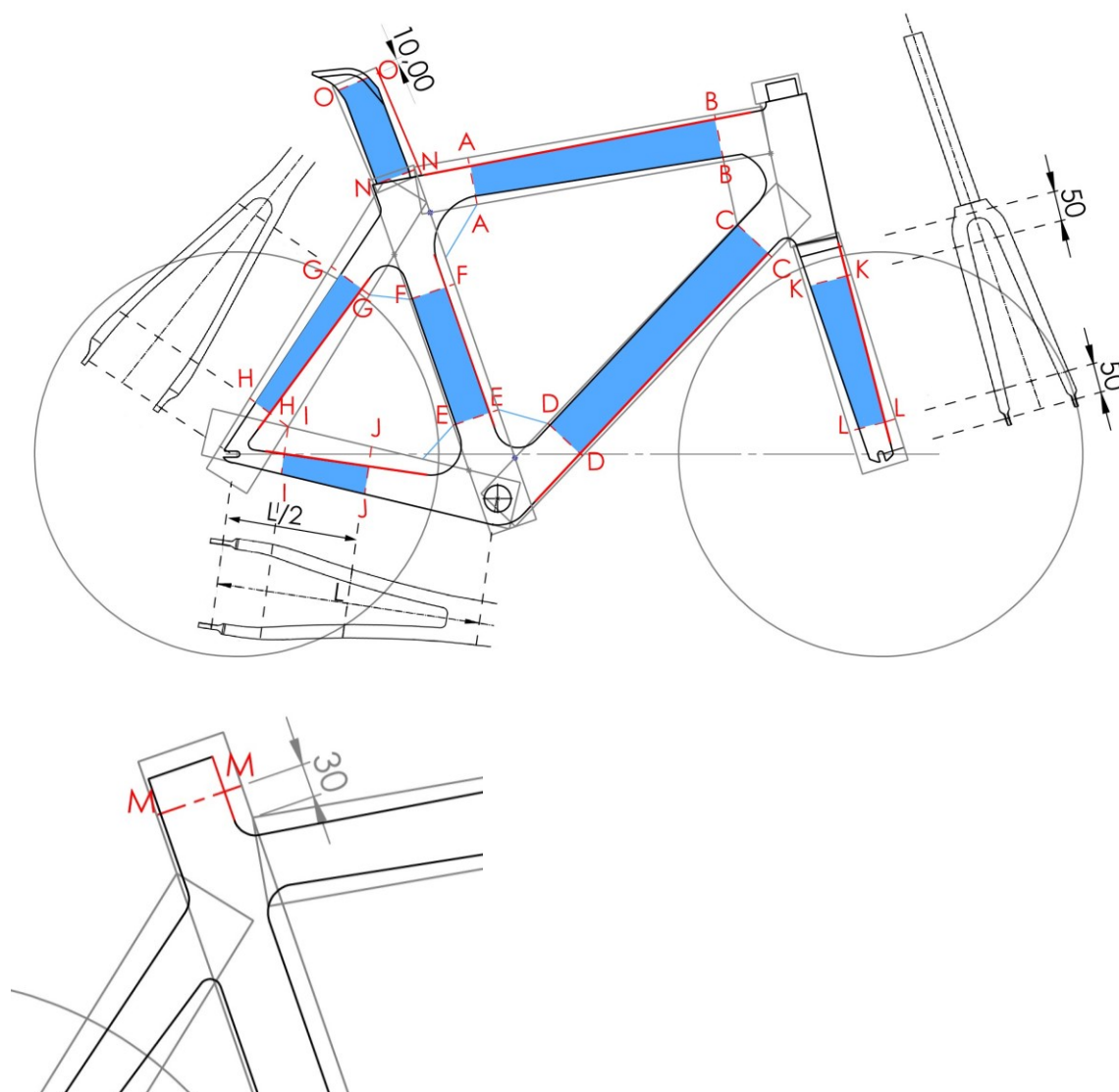


Figure 23: Illustrations of the areas of the frameset subject to the rule of minimum and maximum dimension

Sections A to O 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 center 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 (In case the seat post extends from the upper line of the seat tube): 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.
- Section N-N: a perpendicular section of the seat post passing through the point of intersection of the upper line of the top tube or its extension with the front or the rear line of the seat post box.
- Section O-O: a perpendicular section of the seat post passing through the point 10mm from the upper line of the seat post box on the front line of the seat post 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.

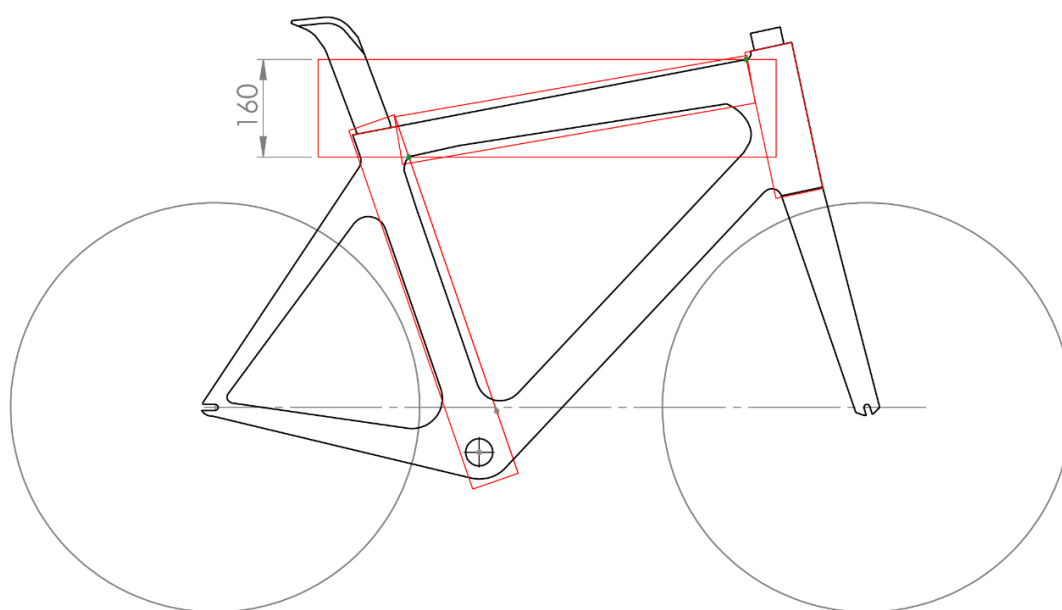


Figure 24: Illustration of maximum allowed sloping top tube

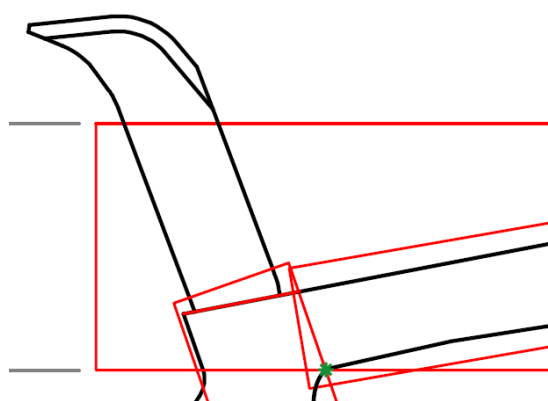


Figure 25: Lowest point (circled in green) that must be contained within the 16 cm-high horizontal box

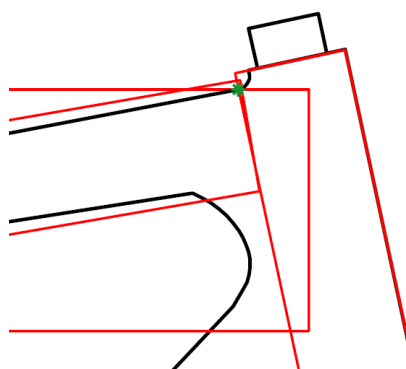


Figure 26: Highest point (circled in green) that must be contained within the 16 cm-high horizontal box

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.

## 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.



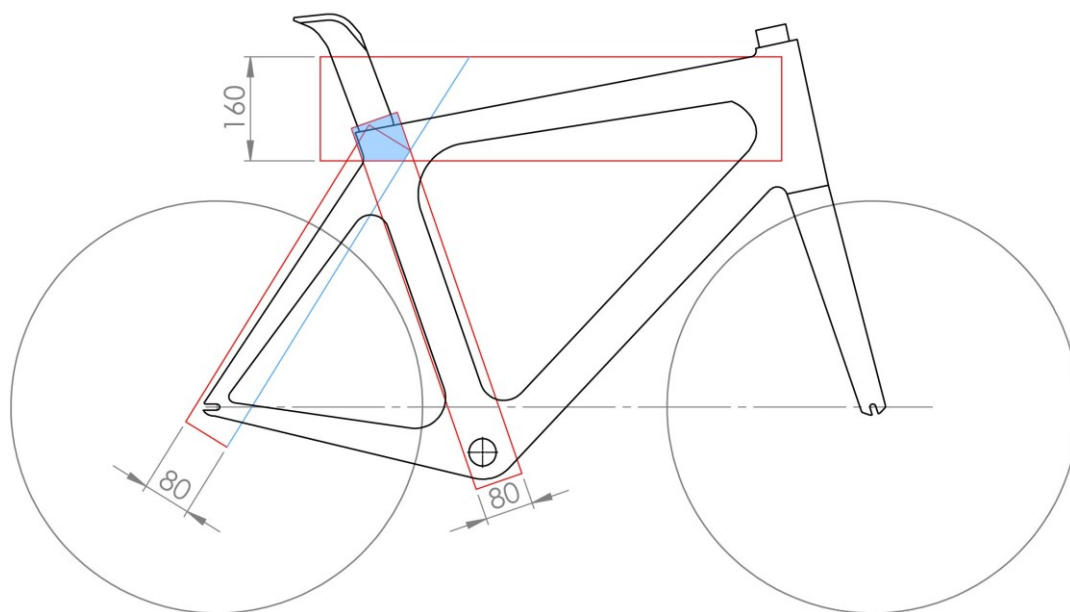


Figure 27: Illustration of the rule on the inclination of seat stays

## 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 28) 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.

The axis of the head tube must always be contained within the head tube box in offset forks, as illustrated in the Figure 29.

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 29) 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.

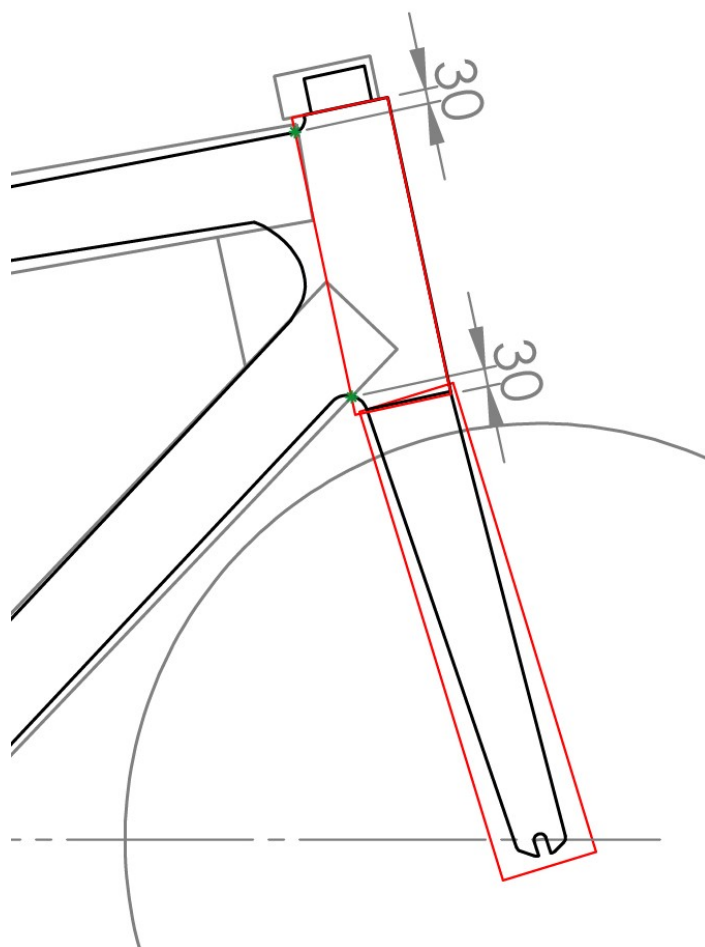


Figure 28: Illustration of the position of the boxes for a fork using a traditional internal steerer

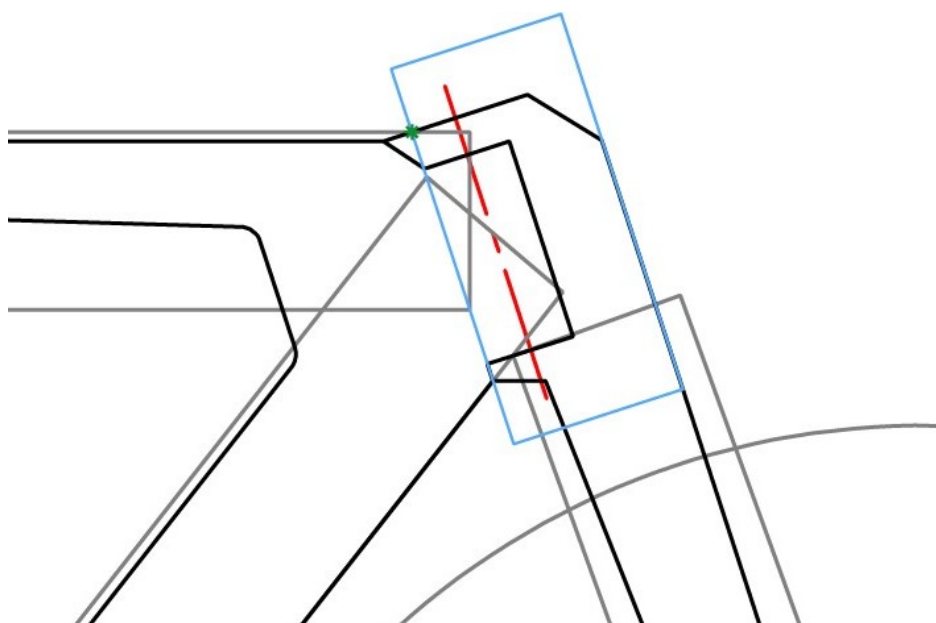


Figure 29: Illustration of the positioning of the axis of the head tube within the head tube box

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.

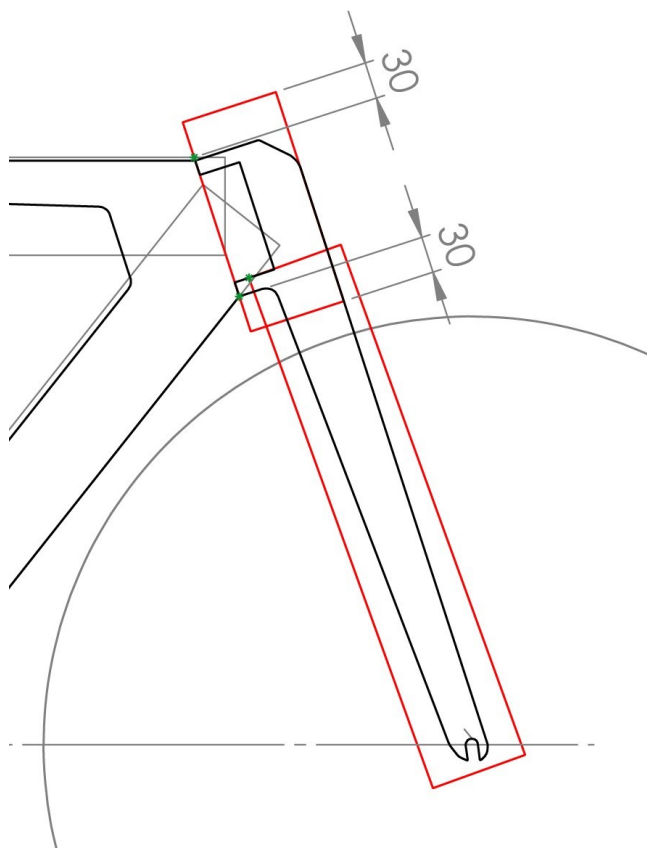


Figure 30: Illustration of the position of the boxes for offset fork

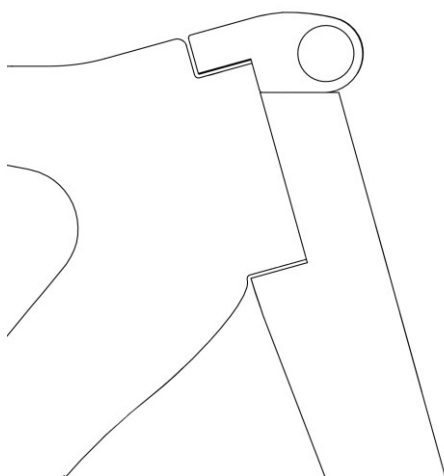


Figure 31: Illustration of a protuberance used as a stem.

## MULTIPLE ELEMENTS

Multiple elements are authorized for the frame (top tube, down tube, seat tube, seat stays, chain stays), the fork, **the seat post**.

The multiple tubes, taken individually and together, have to respect the maximum section dimension of 8 cm and the minimum section dimension of **1** cm.

### 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 10 cm below 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 meters and 1 kilometer), 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 maneuverable 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 center 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)

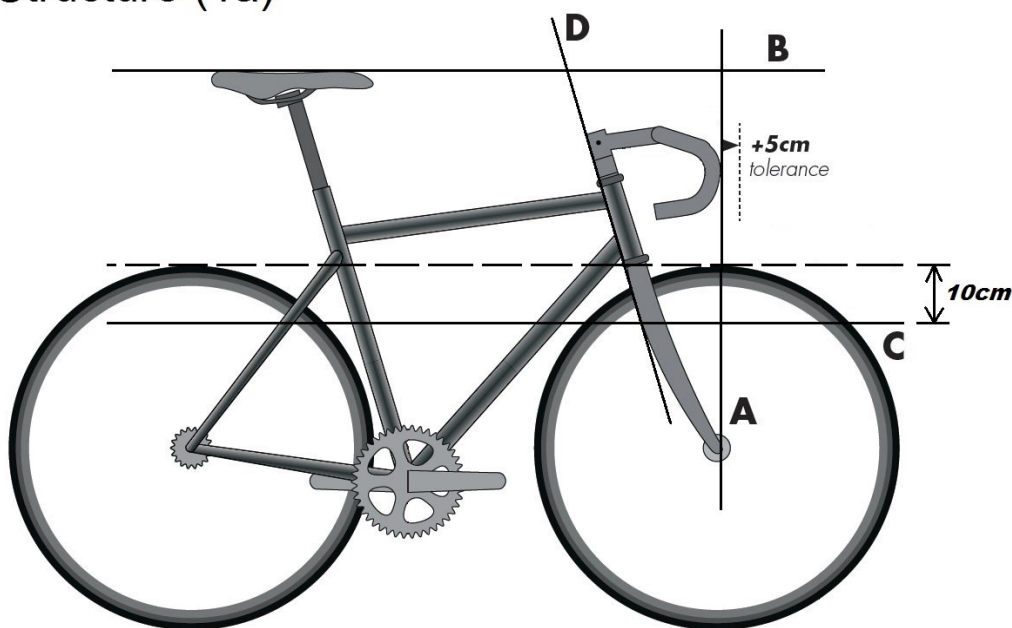


Figure 32: Illustration of the box, marked out by lines A, B, C and D, within which the handlebars must be fully contained.

*“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 and Kilometre/500m time trial on the track, a fixed additional handlebar (consisting of an 2 extensions with sections for each hand to hold and two elbow rests) may be added to the steering system; (see diagram «Structure (1B)»). If both sections are joined by part, the dimensional limit of this part is increased to 1.5 times the value on the horizontal axis, for maximum of 6cm.*

*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.*

*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.*

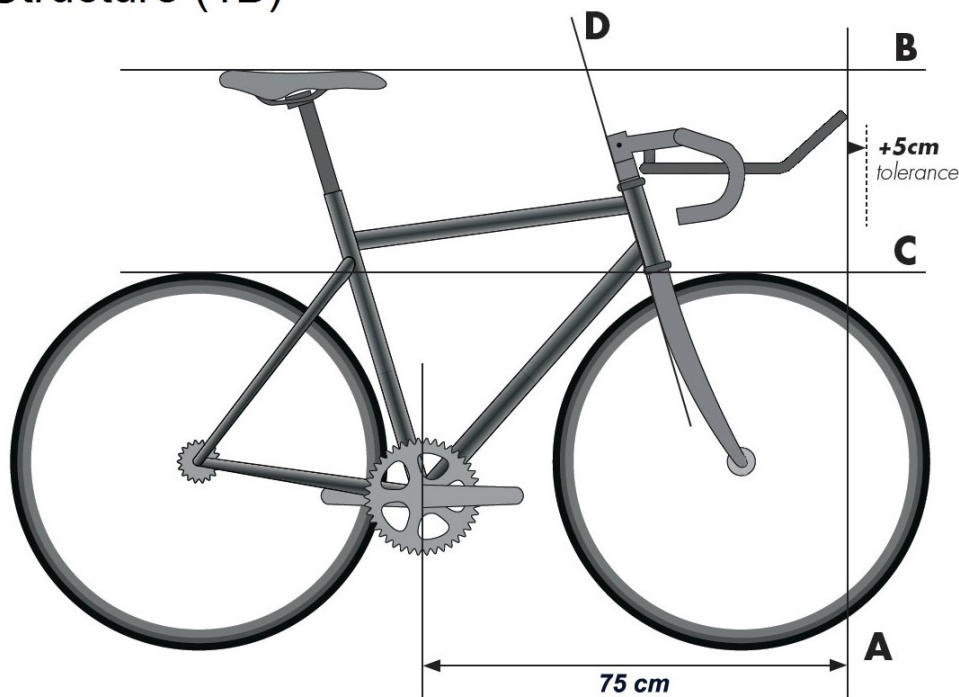
*Only one exemption for morphological reasons may be requested; either the handlebar extension can be moved forward or the peak of the saddle can be moved forward, in accordance with Article 1.3.013.*

*In addition, all extension and elbow rest assemblies must conform to the following :*

- Elbow rests must be made up of two parts (one part for each arm) and are only allowed if extensions are added ;
- The maximum width of each elbow rest is 12.5cm ;
- The maximum length of each elbow rest is 12.5cm ;
- The maximum inclination of each elbow rest (measured on the support surface of the arm) is 15 degrees ;
- The maximum dimension of the cross section of each extension is 4cm.
- The height difference between the elbow support point (midpoint of the elbow rest) and the highest or lowest point of the extension (including accessory) must be less than 10cm."

*Text updated on 20.06.2019*

## Structure (1B)



The regulation regarding the 15 degrees as well as the 12.5 and 4 cm aim to avoid any fairing by using large extensions or a too big inclination.

The article must be understood so that the extension can be of a 4cm maximal section (width and height). On this extension, one part, the “elbow rest” can be wider than 4cm and can go up to 12,5cm wide (projected surface). This part can be of a 12,5cm maximal length.



## EXTENSIONS JOINED BY PART

In case when both extensions are joined by part, the dimensional limit of the joined part is increased to 1.5 times the value on the horizontal axis is 6cm. Other dimensional restrictions remain unchanged.

The joined part should be understood as the piece of the extensions has enlarging properties only in Y and Z axes where Y-axis is parallel to the direction of the movement and should comply with joined by part dimension restrictions.

Any piece of extensions that are enlarging properties in the direction of the X-axis should comply with dimensional restrictions for extension bars.

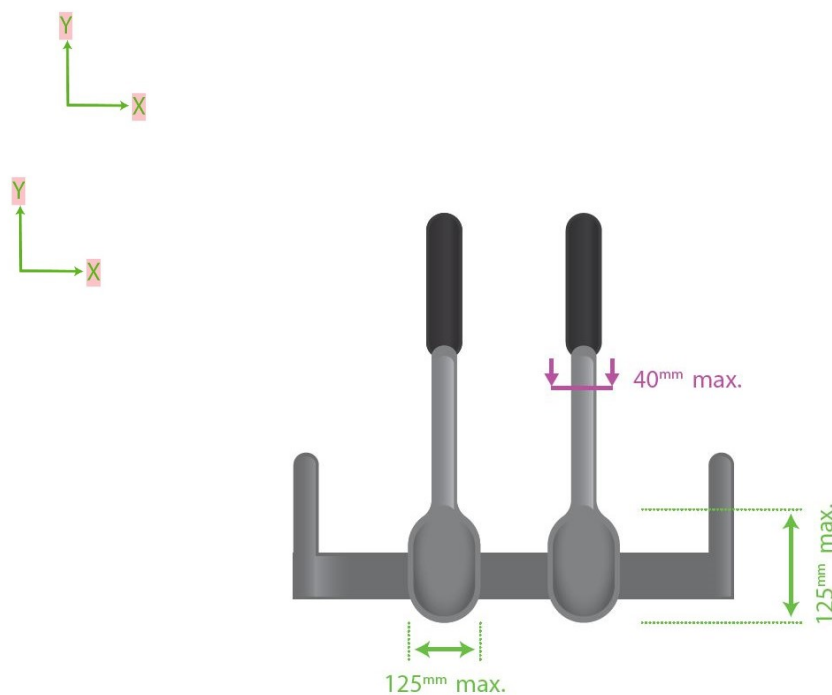
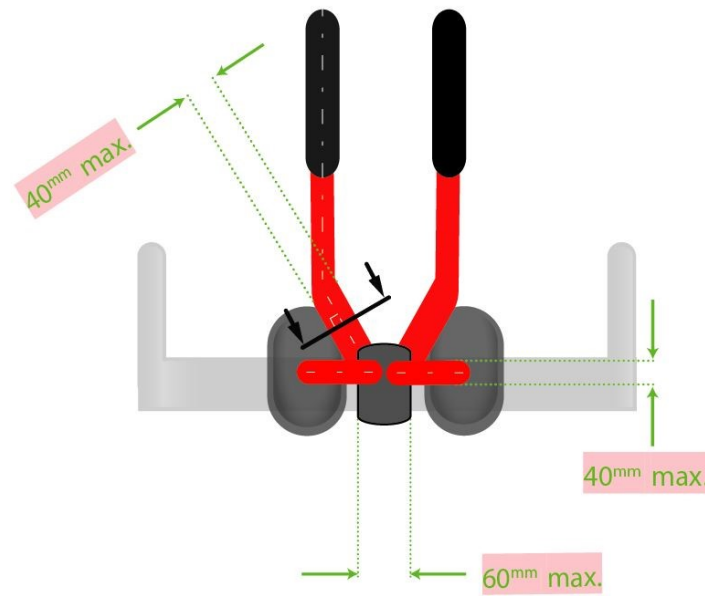
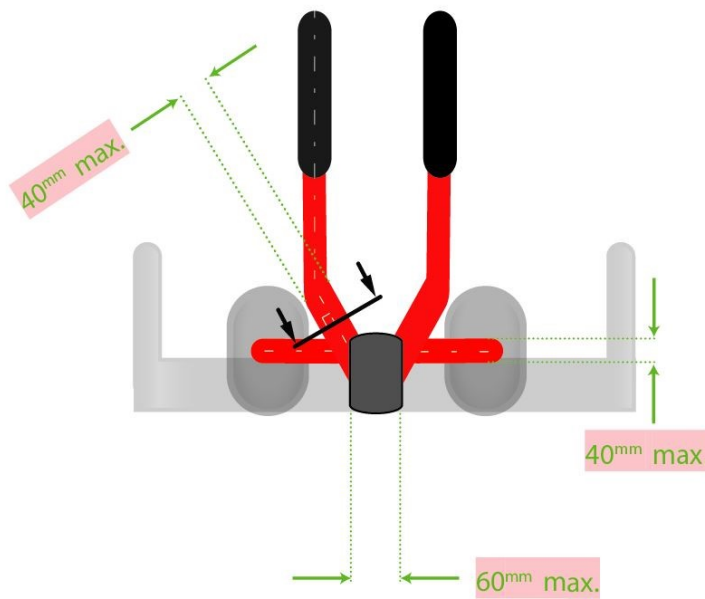


Figure 33: Illustration of the case of the maximal length and width of elbow rests and the maximal width and height of extensions



■ Extensions  
■ Joining piece



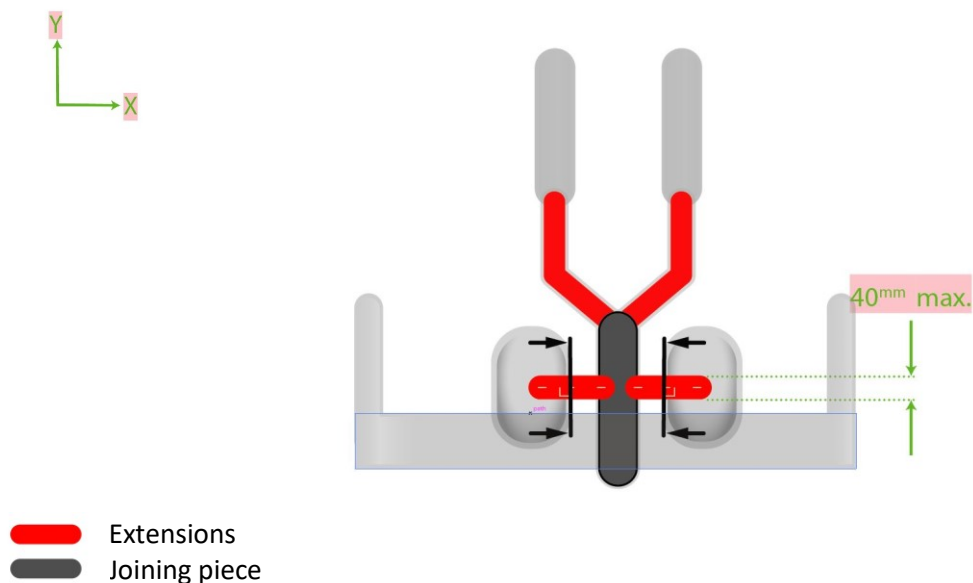


Figure 34: Illustrations of extensions joined by part

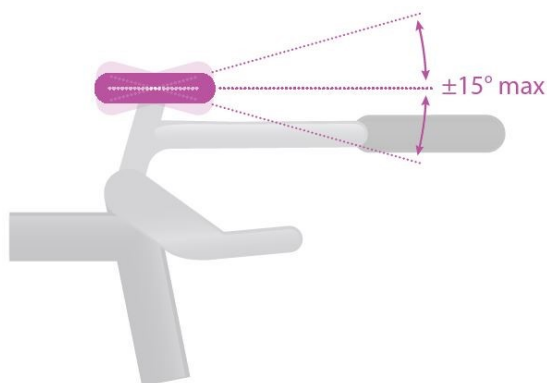


Figure 35: Illustration of the maximum inclination of each elbow rest

Any binding element between extension bars, elbow rest is considered as the continuation of the extension bars. Therefore, the maximum dimension of the cross section of each binding element must be 4 cm as well as the 3:1 rule must be respected. Any binding element between spacers must follow the identical restrictions. Multiple binding elements are forbidden. Only one binding element can be placed in the mentioned areas.

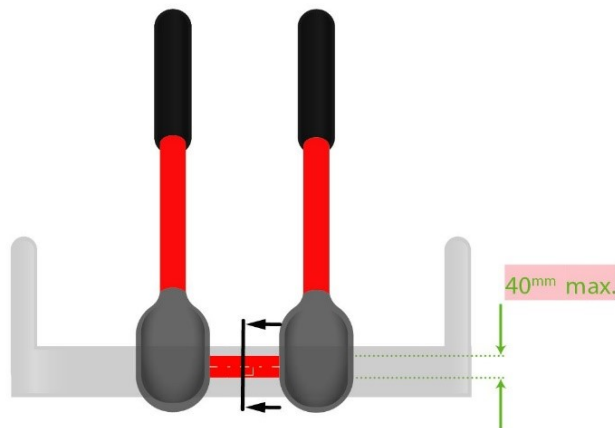


Figure 36: Illustration of the binding element

Having the handlebar taped or molded on the complete length is authorized as long as the conditions mentioned above are respected. The position of the elbow rest is not controlled and it is possible to have it integrated in the extension.

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.

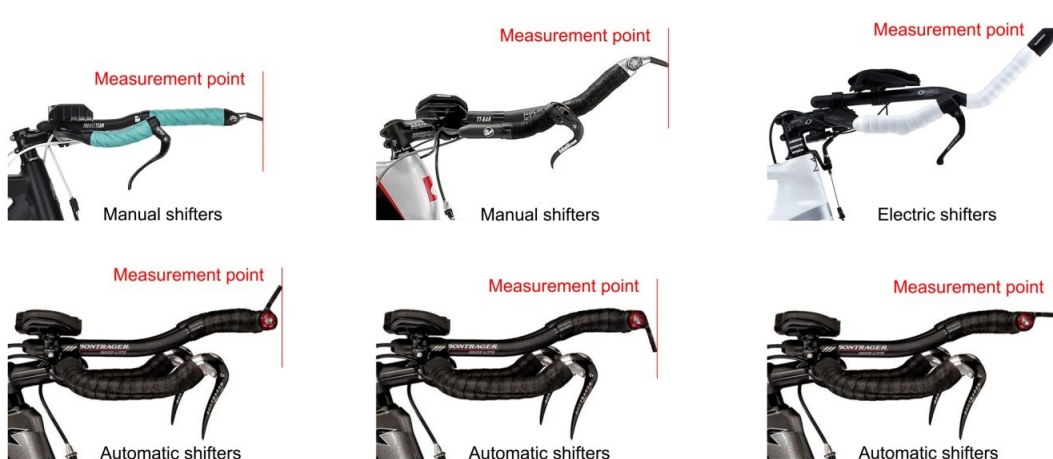


Figure 37: Points of measurement for the horizontal distance from the bottom bracket axle

The handlebar extensions plus any accessories (controls, levers, etc. and all their mounting accessories) must be within  $\pm 10$  cm **with a tolerance of 5mm** from the level defined by the middle of the elbow/forearm supports. **Elbow rest pads must not be taken into account during the measurement.** Any moving parts have to be placed in the most vertical position that can remain unsupported through their range of movement.

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.

The measurement is made from a horizontal perspective of the elbow support. If it is inclined, the measurement will be made from the middle of the elbow support.



Figure 38: 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 position with the saddle withdrawn at least 5 cm behind a vertical plane passing through the center the bottom bracket and a maximum advancement of the handlebars of 10 cm in front of the front wheel axle. An exemption for morphological reasons is possible for riders who want to bring the tip of the saddle forward up to the vertical plane passing through the center of the bottom bracket.
- 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 center 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 who want to bring the tip of the saddle forward up to the vertical plane passing through the center 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 center of the bottom bracket and an advanced position for handlebar extensions of a maximum of 75 cm in front of the center of the bottom bracket. An exemption for morphological reasons is possible for riders who want to bring the tip of the saddle forward up to the vertical plane passing through the center of the bottom bracket. Furthermore, an exemption for morphological reasons is possible for riders who want to advance the handlebar extension to up to 80 cm in front of the center of the bottom bracket. Only one exemption for morphological reasons is allowed per rider.
- For time trials (500 m or 1 km): the position with the saddle withdrawn at least 5 cm behind a vertical plane passing through the center the bottom bracket and a maximum advancement of the handlebars of 10 cm in front of the front wheel axle. In case of using handlebar extensions, an advanced position of a maximum of 75 cm in front of the center

of the bottom bracket. An exemption for morphological reasons is possible for riders who want to bring the tip of the saddle forward up to the vertical plane passing through the center of the bottom bracket. Furthermore, an exemption for morphological reasons is possible for riders who want to advance the handlebar extension to up to 80 cm in front of the center of the bottom bracket. Only one exemption for morphological reasons is allowed per rider.

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	-5 max (ou 0 max cause morphologique)	10 max
	Vitesse par équipes – Team sprint	-5 max (ou 0 max cause morphologique)	10 max
	Keirin	-5 max (ou 0 max cause morphologique)	10 max
	200m lance – Flying 200m	-5 max (ou 0 max cause morphologique)	10 max
	Tour lance – Flying Lap	-5 max (ou 0 max cause morphologique)	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	-5 max (ou 0 max cause morphologique)	10 max
Prolongateur Extension	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 39: Authorized positions for saddle and handlebars/handlebar extensions for track events

## ARTICLE 1.3.024

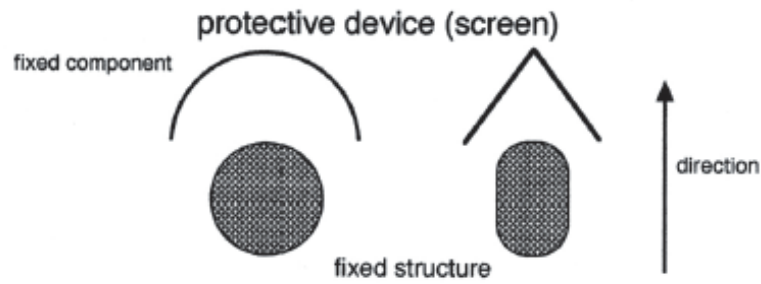
*“Any device, added or blended into the structure, that is destined to decrease, or which has the effect of decreasing, resistance to air penetration or artificially to accelerate propulsion, such as a protective screen, fuselage form fairing or the like, shall be prohibited.”*

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 40: Illustration of a protective screen*

A cover is authorized insofar as it ensures only the cover of an object without artifices in its shape, its content and its volume. These covers must in no case constitute an excrescence. Moreover, all together with equipment, it must then comply with all UCI rules specified to each piece of equipment.



*Figure 41: Illustrations of authorized covers*

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





Figure 42: Cover added to frame to conceal brake cables

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

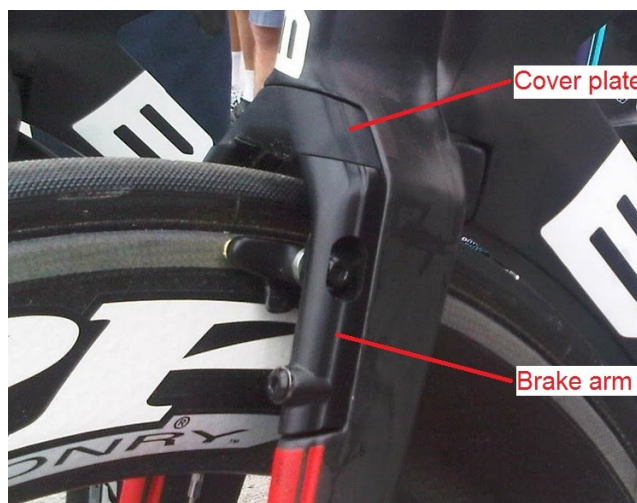


Figure 43: Brake integrated with the fork and fitted with a cover

The combination of the frame tube (or fork tube) + brake + cover must respect 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.

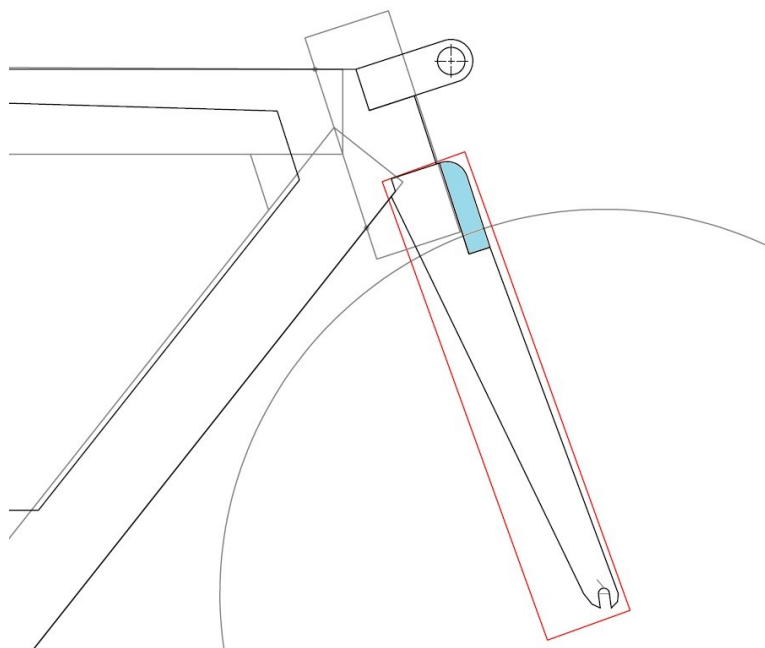


Figure 44: Illustration of a cover that fits over the brake only

- 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.

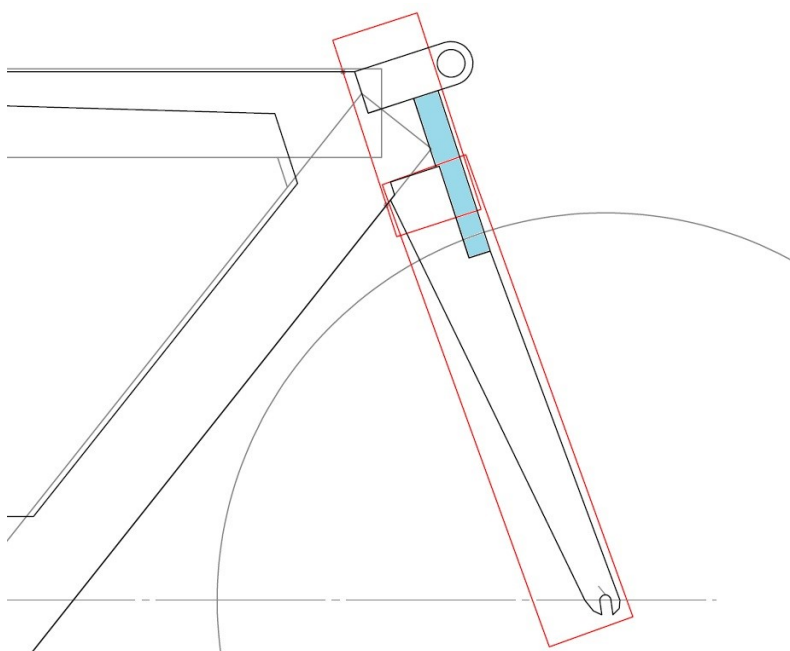


Figure 45: Illustration of a cover that fits over the brake and extends to the stem

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 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 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~~ frameset 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 frameset accessories that are subject to the 3:1 rule, the minimum section dimension is 1 cm (~~in any direction~~). 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 1cm (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 authorized for an element, namely 8 cm, the minimum thickness is  $8/3 = 2.667$  cm;
- for the use of the minimum thickness authorized 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 authorized 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.

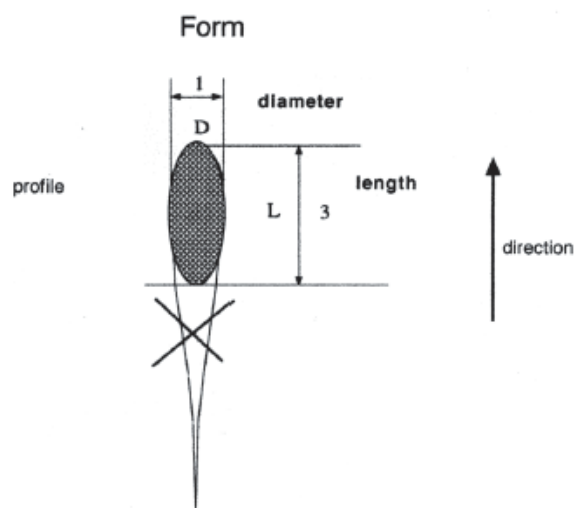


Figure 46: Illustration of the 3:1 rule restricting the fuselage form of elements

For elements subject to the 3:1 rule, a tolerance of one millimeter 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.

~~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.~~

## Sections

The 3:1 rule must be applied to all sections that are perpendicular/normal to the general shape of the element.

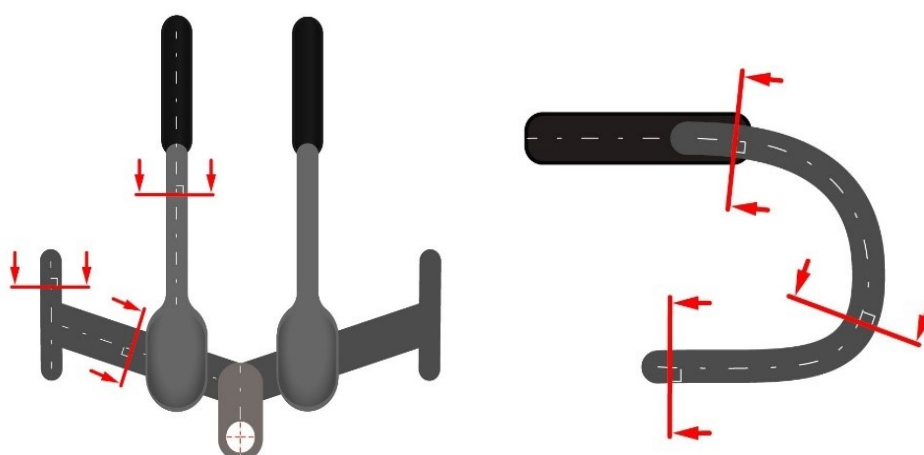


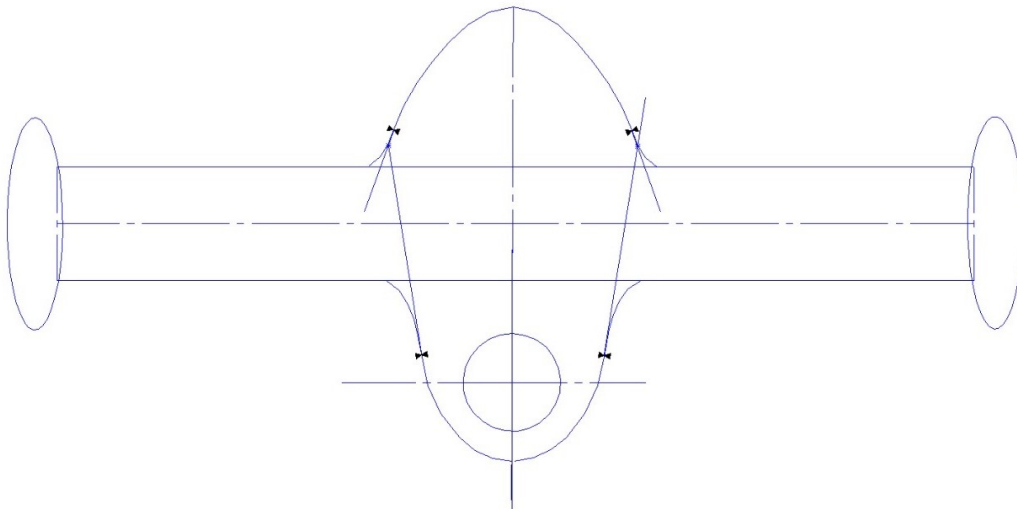
Figure 47: Illustration of the 3:1 rule application

## Molded elements

In case elements are molded together, the principle of a tangential line to an inclination point of the stem contour lines will be applied.

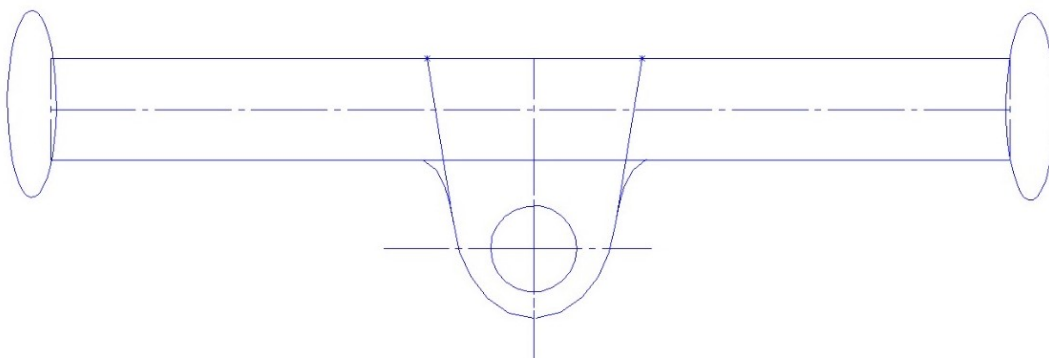
**If the stem is molded into the handlebar in a way that surpasses the general shape of the handlebar, in the front and in the back:**

Tangential lines with points of intersections will define the shape of the stem.



**If the stem is molded into the handlebar in a way that surpasses the general shape of the handlebar, in the back:**

The intersection of tangential lines with the front contour line of the handlebar will define the shape of the stem.



**If the stem is molded into the handlebar in a way that surpasses the general shape of the handlebar, in the front:**

The intersection of tangential lines with the back contour line of the handlebar will define the shape of the stem.

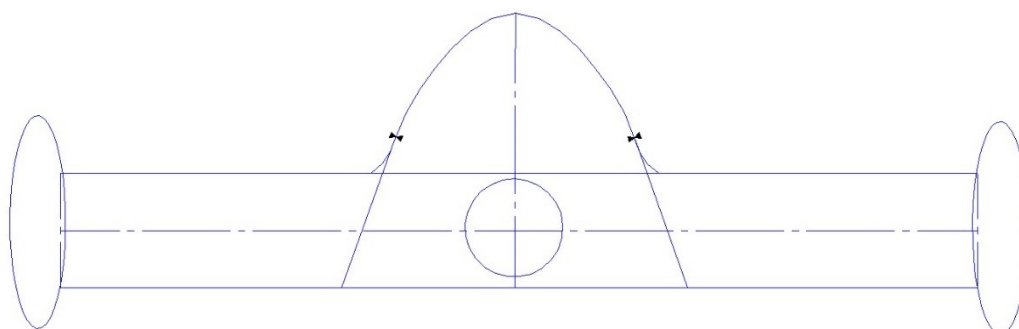


Figure 48: Examples of a stem definition in case when it is molded together with a handlebar

## MULTIPLE ELEMENTS

Multiple elements are authorized for the stem, ~~the seat post~~ and the handlebars. Individual tubes and the multiple tubes have to respect the maximum section dimension of 8 cm and the minimum section dimension of 1 cm, as well as respecting the 3:1 rule. 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.

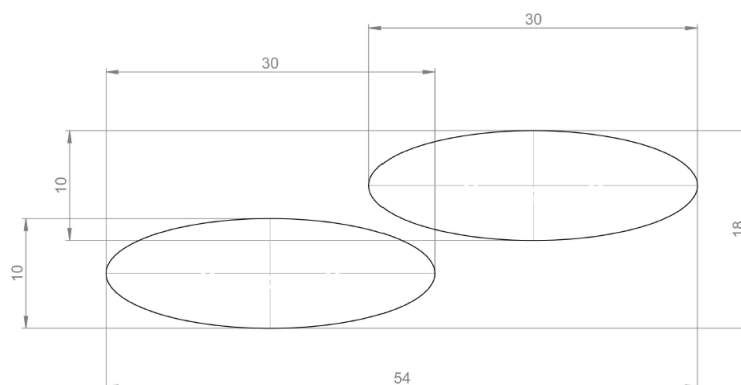


Figure 49: Example of a compliant section of an element formed by two tubes

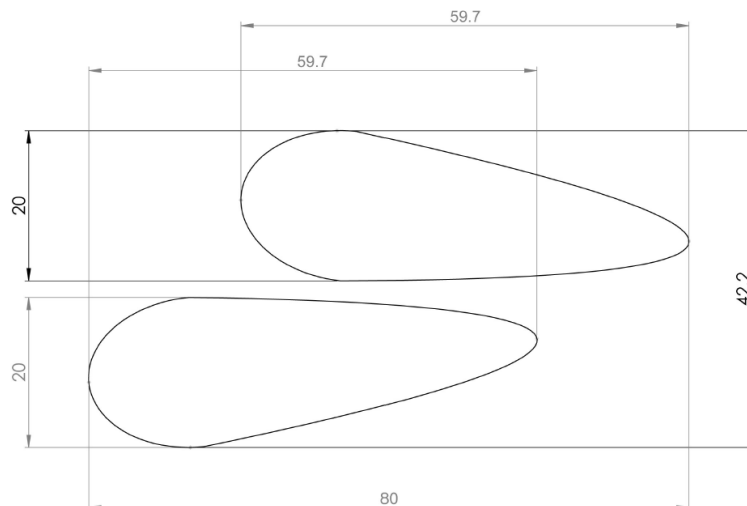


Figure 50: Example of a compliant section of an element formed by two tubes

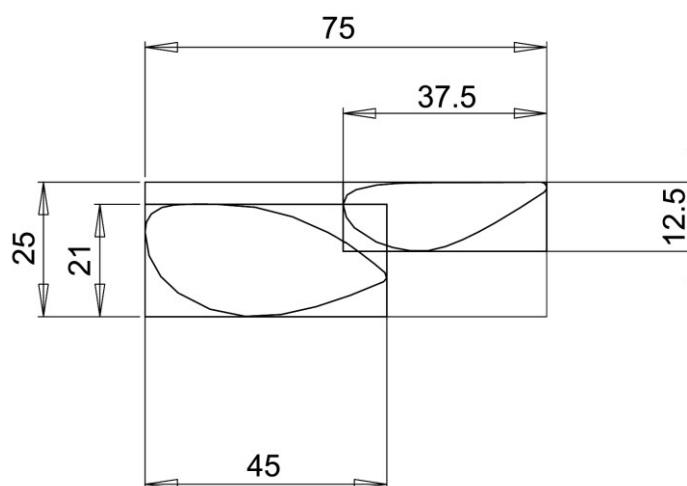


Figure 51: Example of a compliant section of an element formed by two tubes

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 1 cm. This scenario is limited to one exception per element.

## 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 **freely and without bending** between the tube and the wheel as shown by the illustrations below.



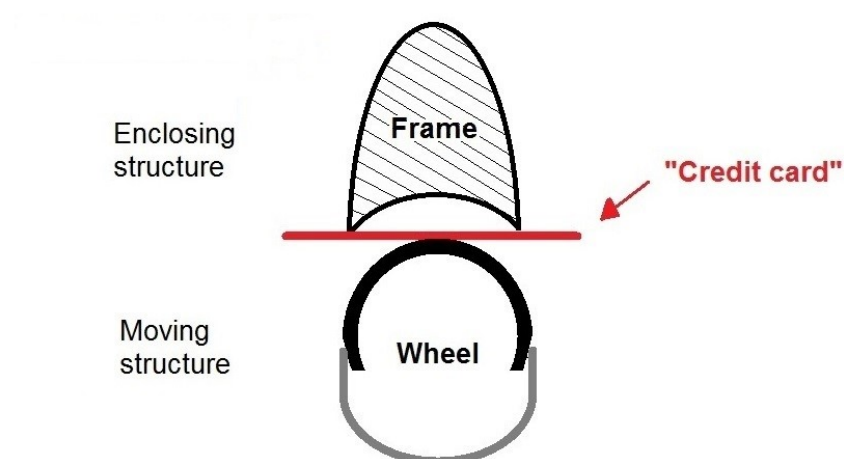


Figure 52: Illustration of wheel fairing



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

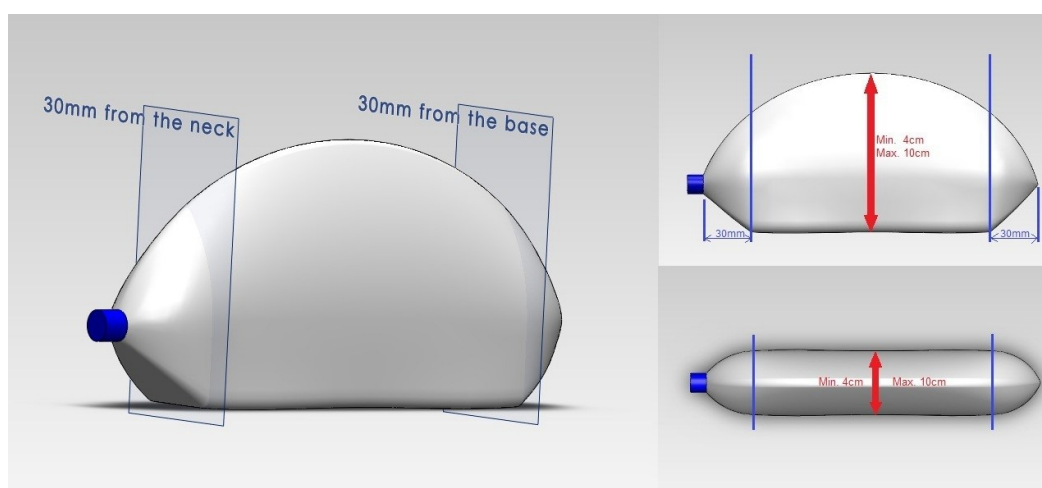
*"Bottles shall not be integrated to the frame and may only be located on the down and seat tubes on the inside of the frame. The dimensions of the cross sections of a bottle used in competition must not exceed 10 cm or be less than 4 cm and their capacity must be a minimum of 400 ml and a maximum of 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 authorized 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 an "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 liters 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.
- 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 (including but not limited to telemetry, transponder units, GPS units and video-cameras) that has the ability and purpose to collect or transmit data, information or images provided that it complies with the following conditions:*

- 1. 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;*
- 2. 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;*
- 3. Any and all data stemming from a rider's onboard technology equipment must not be transmitted during a race to a third person.*

*Any intended use by a team or rider of onboard technology equipment shall require prior authorisation by the UCI or the organiser, with UCI's consent. Requests for authorisation shall be assessed, inter alia, on criteria of equal access to equipment, sporting fairness*

*and integrity, and shall also comply with article 1.3.006.*

*The UCI shall not be liable for any consequences deriving from the installation and use of onboard technology equipment by licence holders, nor for any defects it may hold or its non-compliance.*

*For the sake of clarity, point 2 above does not apply to removable computers / rider information systems.”*

*text modified on 15.02.19*

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 1.3.024 QUARTER

*“The UCI may fit, or appoint its agents or commissaires to fit, onboard technology devices for the purpose of detecting technological fraud during competition. Refusal by a team or rider to comply with instructions to carry such onboard technology devices may lead to the imposition of disciplinary measures in accordance with article 1.3.003bis.”*  
*(article introduced on 15.02.19)*

## 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.*

*Disc brakes are allowed in mountain bike training and competition.*

*Disc brakes are allowed in road race and time trial training and competition.*

*Disc brakes are allowed in BMX training and competition.*

*Disc brakes are allowed in Trials 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.”*

*(text modified on 01.07.18)*

With regard to the use of disc brakes in the road disciplines, for safety reasons, the discs must imperatively be chamfered.

On the track, the transmission exclusively must consist of three distinct elements:

- a chain
- a chainring
- a sprocket

No additional elements are authorized (the chain tensioner, a derailleur, etc.). For safety reasons and in line with this constraint, chainrings and sprockets must be of a circular shape.

## Section 3: riders' clothing

### § 1 General provisions

#### **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, four-cross and Enduro mountain bike events, BMX, trials and indoor cycling, specific provisions are laid down in the part of the regulations concerning the discipline in question."*

*(text modified on 01.01.20)*

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 jackets must be either transparent, the same colour as the team jersey or display the team's name or logo on their front and back. The minimum size of the inscription shall be at least 20cm in height or width."*

*(text modified on 23.10.19)*

#### **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, BMX Freestyle, para-cycling, as well as during cycling for all events.*

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

*During training on the road, the wearing of a rigid safety helmet is recommended. However, riders must always comply with the legal provisions in this regard.*

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.*
- *Using only accessories approved by the helmet manufacturer.”*

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 or covers are authorized provided that they are supplied by the helmet manufacturer.

## **ARTICLE 1.3.032**

*[abrogated].*

## **ARTICLE 1.3.033**

*“Items of clothing may not modify the morphology of the rider and any non-essential element or device, of which the purpose is not exclusively that of clothing or protection, is forbidden. This shall also apply regarding any material or substance applied onto the skin or clothing and which is not itself an item of clothing.*



*Modifications to the surface roughness of clothing are authorized but may only be the result of threading, weaving or assembling of the fabric. Surface roughness modifications shall be limited to a profile difference of 1mm at most.*



*The measure of surface roughness modification shall be made without pressure or traction on the clothing.*

*All clothing must maintain the original texture of the textile and may not be adapted in a manner to integrate form constraints. Therefore, when not worn, clothing may in no case contain any self-supporting element or rigid parts."*

*Text modified on 04.03.19*

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.

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.

Gloves used in track competition must not be mittens that only have one, two or three separations between the fingers. **Gloves must not fully or partially restrain free movements of fingers.**



*Figure 56: Example of a mitten forbidden in track competition*



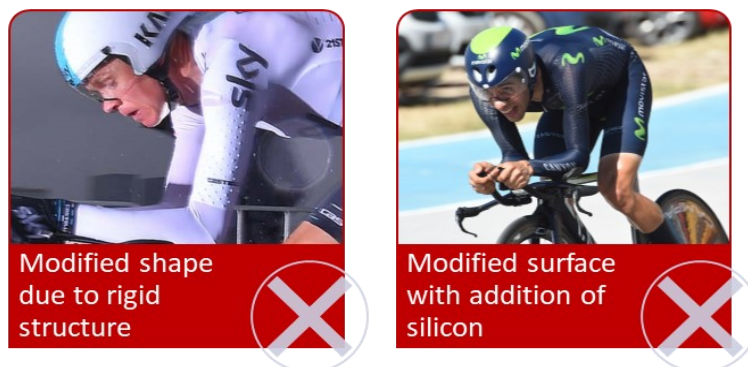


Figure 57: Example of forbidden product and equipment

Non-essential items forbidden by article 1.3.033 of the UCI Regulations shall include any product or substance applied on the body (legs, arms, etc..) aimed at improving aerodynamics. Specific oils for protection against cold or rain are tolerated.



Figure 58: Example of a substance applied on the body

## ARTICLE 1.3.033 BIS

*"Socks and overshoes used in competition may not rise above the height defined by half the distance between the middle of the lateral malleolus and the middle of the fibula head."*

*Article introduced on 15.10.18*

In order to clarify the socks height regulation and have a fair height between riders, the following height is now imposed.

## ARTICLE 1.3.034

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

**TRACKING MODIFICATIONS (HIGHLIGHTED IN RED)**

VERSION	ARTICLE
25.02.2020	<b>1.3.024</b> FAIRING
25.02.2020	<b>1.3.023</b>
25.02.2020	<b>1.3.033</b>
04.05.2020	<b>1.3.025</b>
01.10.2020	<b>1.3.023</b> POSITIONS FOR TRACK EVENTS
01.01.2021	<b>1.3.001 BIS</b>
01.01.2021	<b>1.3.002</b>
01.01.2021	<b>1.3.020</b>
01.01.2021	<b>1.3.024</b> FUSELAGE
01.01.2021	<b>1.3.024</b> MULTIPLE ELEMENTS