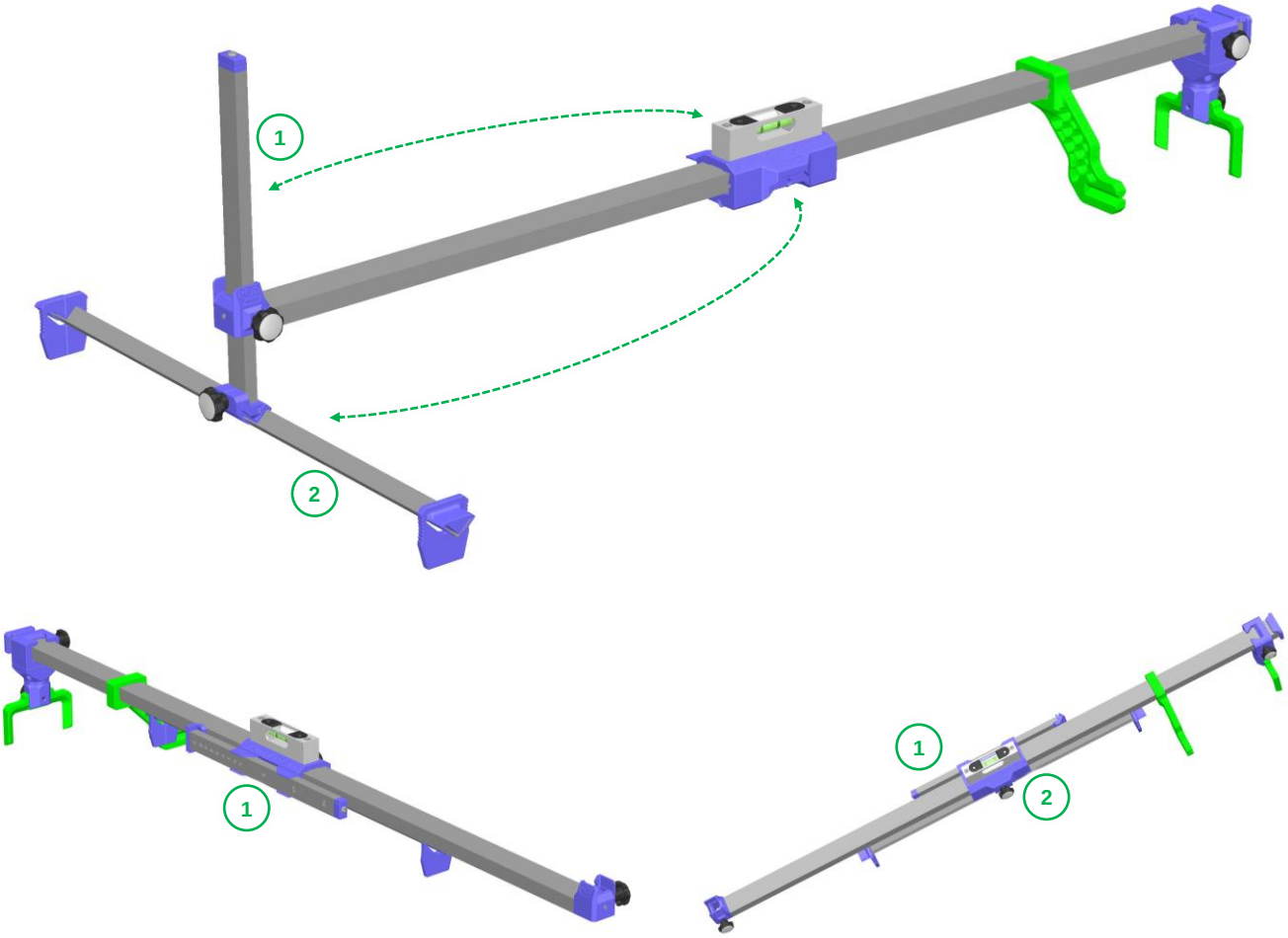
Smart Tool Cobram - Bike Fitting Ultimate System
ALL-IN-ONE SYSTEM FOR BIKE FITTING

TOOL CONFIGURATION



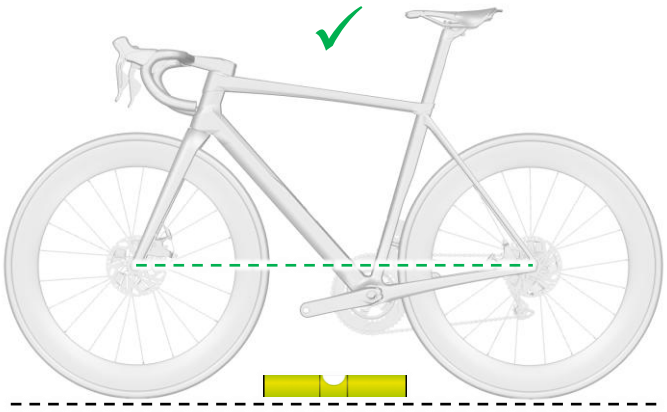
To transport the instrument, it is advisable to assemble parts 1 and 2 as shown.

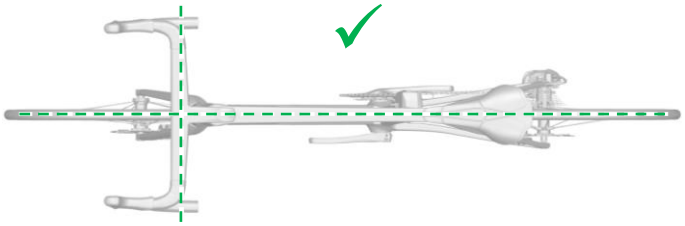
GENERAL CHARACTERISTICS OF THE INSTRUMENT

- The spirit level is already installed on the horizontal rod and calibrated with 0.05° resolution digital level (accuracy: ± 0.2°);
- The main millimeter rod slides horizontally on the swivel interface (at the BRP) which, by rotating along the vertical axis, allows direct measurement of the vertical drop between BRP and handlebar gripping points such as the handlebars grips (for MTB handlebars) or the highest point of the brake hood body (for ROAD handlebars). The swivel interface is equipped with an attachment where to place the interchangeable caliper of BRP.
- The millimeter sliding vertical rod allows to define the vertical drop between the BRP of the saddle and the handlebar grip;
- NOTE: For Road, Aero and Gravel handlebars, the secondary horizontal “ROD” with “V” profile can be used to achieve a bridge between the handlebar grip points at the height of the brake controls. The “ROD” is millimetered with the zero starting from the center to the outside and can also be used for a symmetrical adjustment of the distance of the brake levers from the center of the handlebar.
- Using the sliding indicator “B.B. ZERO POINT,” with the main rod oriented along the axis of the frame, the vertical distance from the center of the bottom bracket to the indicator attachment slot is measured using a common measuring tape, which will be used to calculate the saddle height.
- REACH and DROP positioning of brake hoods (ROAD/AERO/GRAVEL only): Using the main rod with bubble level together with the vertical sliding rod, you can position and measure, via the wedge at the rod tip, the REACH and DROP distances of the brake hoods (integrated brake/shift levers).
- REACH and tilt (DROP) positioning of brake levers (MTB/e-MTB only): Using the main rod with bubble level together with the vertical sliding rod, you can position and measure, via the wedge at the rod tip, the REACH distance of the brake controls and the brake lever tilt point (DROP).
- SIMMETRIC ADJUSTMENT OF THE BRAKE LEVERS (for ROAD/AERO/GRAVEL/MTB bikes): Using the removable horizontal millimeter rod marked “ROD”, it is possible to symmetrically measure the distance from the handlebar center to the brake levers by also using the two sliding wings.

PRELIMINARY BICYCLE PREPARATION

- Using the Tool in the measurement steps, it is important that the bicycle positioning conditions are optimal in order to achieve a good final setup result.
- Consider the following advices before proceeding with bicycle measurement and adjustment settings:
  1. Ensure that the bicycle is placed on the ground over a FLAT SURFACE so that it is parallel and perpendicular levelled to the floor. DO NOT take measurements on sloping floors!
  2. The imaginary line joining the central points of the thru-axle of wheels should be parallel to the flat surface on which the bicycle is placed;
  3. Specific Bike Fitting supports or stands can be used to facilitate the positioning of the bicycle so that the result meets the requirements of POINT 1 and POINT 2;
- If the bicycle is positioned as described in the previous points, accurate horizontal leveling of the main rod (using the spirit level) will return exact measurements between the BRP (Biomechanics Reference Point) of the SADDLE and the DROP AT THE HANDLEBAR POINT.





PROCEDURE FOR MEASUREMENTS (Road / Aero / Gravel Bikes)

- The measurements to be taken in the measurement procedure are: 3 using the reading of values on the millimeter rods and 1 using a measuring tape.

Measurement sequence: A - A1 - B - C - D

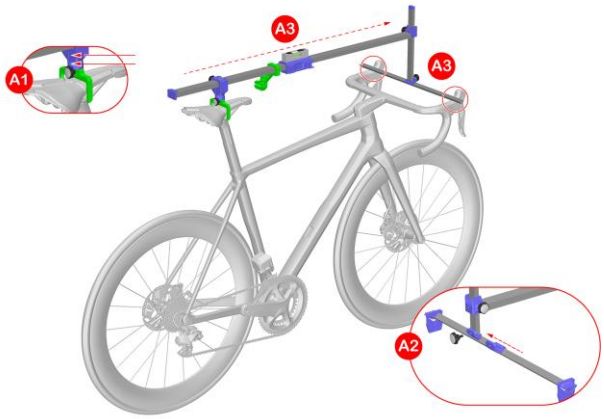
A — HORIZONTAL DISTANCE FROM SADDLE BRP TO HANDLEBAR POINT

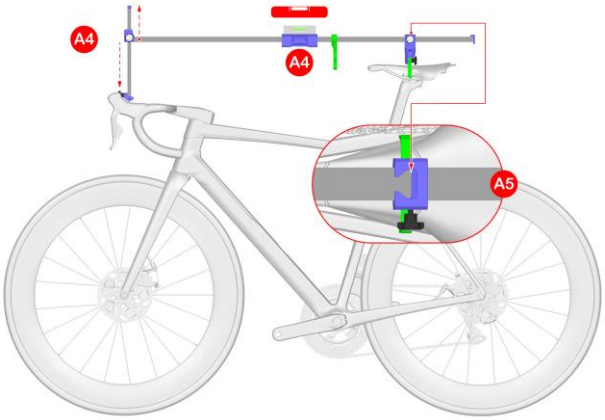
A

1. Place the anatomical center caliper at the saddle contact point and make sure the handlebar is perpendicular to the frame axis (front wheel collinear to frame) (**REF. A1**);
   - **NOTA:** NOTE: The reference line printed on the anatomical caliper holder must coincide with the reference line printed on the swivel interface; the locking handle of the anatomical caliper must face toward the rear of the saddle. The main rod should be oriented along the axis of the frame;

2. Install the secondary horizontal "ROD" with "V" profile on the wedge of the vertical rod to obtain a bridge between the handlebar gripping points at the height of the brake controls (**REF. A2**);
   - OPEN the HANDLE of the READING BLOCK LOCATED ABOVE THE SWIVEL INTERFACE;
   - SCROLL the horizontal rod to position the "ROD" at the handlebar grip points at the height of the brake controls (**REF. A3**)
   - TIGHTEN the HANDLE of the READING BLOCK LOCATED ABOVE THE SWIVEL INTERFACE;

3. OPEN the HANDLE of the VERTICAL ROD READING BLOCK;
   - SCROLL the vertical rod until the bubble level is within the horizontal alignment range (**REF. A4**);
   - TIGHTEN the HANDLE of the VERTICAL ROD READING BLOCK;
4. ENTER IN FIELD A the measurement read on the horizontal main rod at the arrow printed on the sliding block connected to the swivel interface of the anatomical caliper (**REF. A5**).



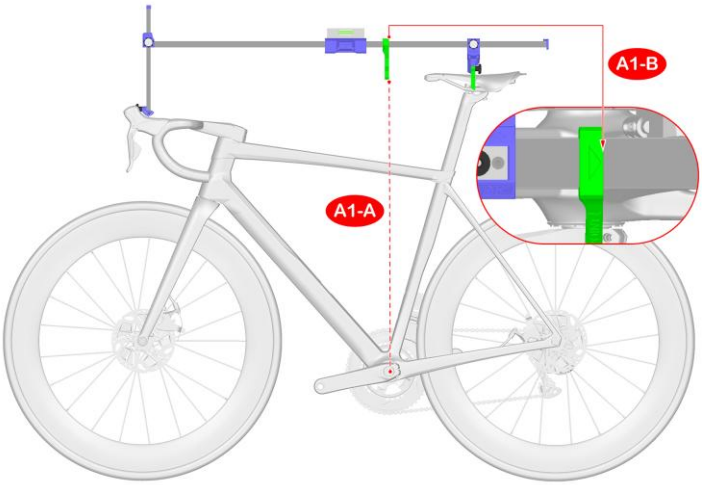


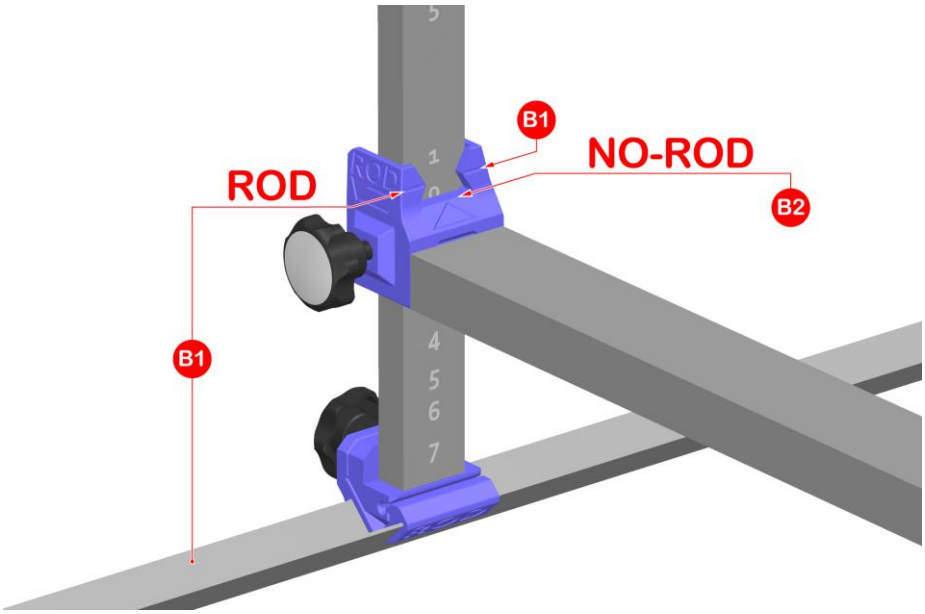
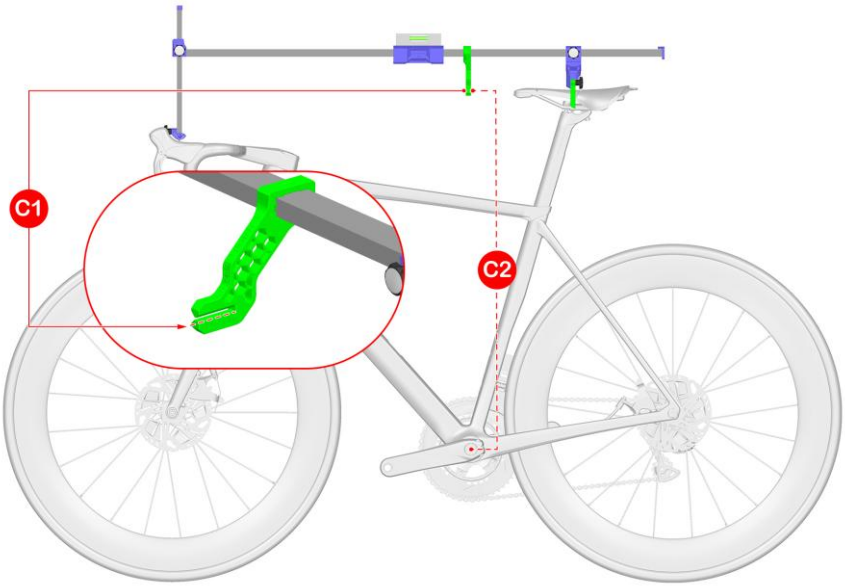
A1 — HORIZONTAL DISTANCE FROM THE CENTER OF THE BOTTOM BRACKET TO THE POINT OF THE HANDLEBAR

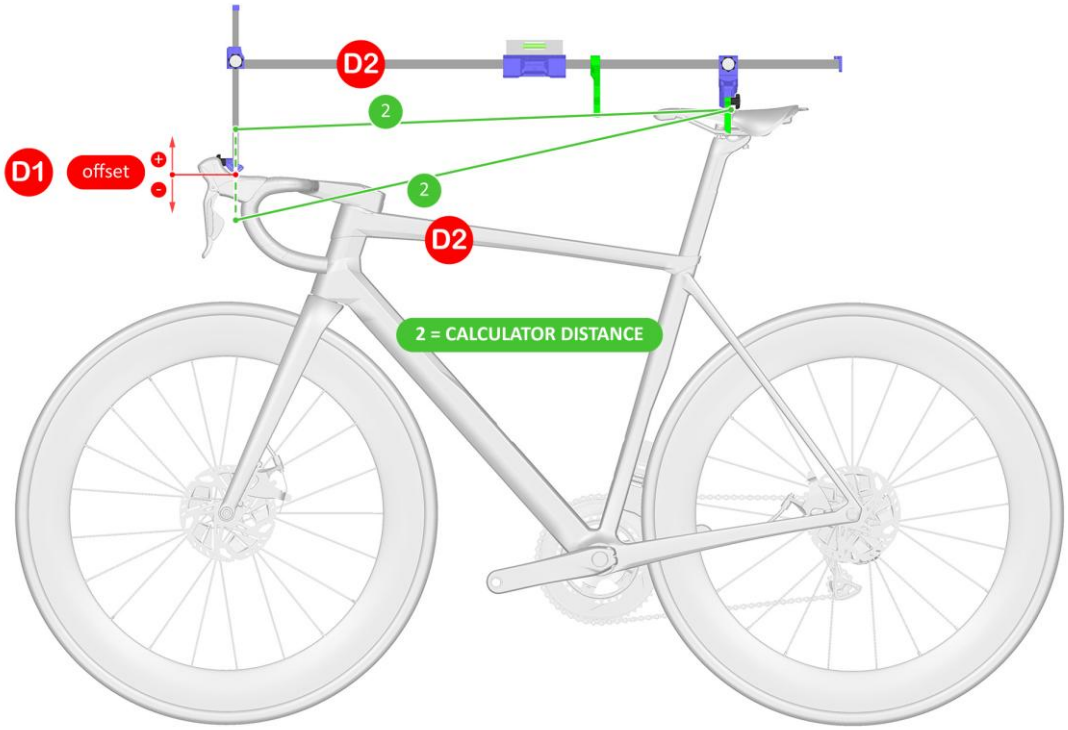
A1

1. Without repositioning the instrument, slide the "B.B. ZERO POINT" bracket to the center of the bottom bracket. The edge to be aligned with the center of the bottom bracket is indicated with two arrows printed on the bracket (**REF. A1-A**);
   - **NOTE:** To facilitate this operation, use a laser device or a long spirit level;

2. ENTER IN FIELD A1 the measurement read on the horizontal main rod at the arrow printed on the sliding bracket "B.B. ZERO POINT" (**REF. A1-B**).



B	DISTANCE OF THE VERTICAL DROP BETWEEN THE BRP OF THE SADDLE TO THE POINT OF THE HANDLEBAR
B	**1.** ENTER IN FIELD B the value read at the two lines (- -) located above the arrow printed on the sloping plane of the slide block of the vertical rod (**REF. B1**); • **CAUTION:** Under different conditions, if for some reasons the "ROD" is NOT used, enter the measurement read at the arrow printed on the sloping plane of the slide block of the vertical rod (**REF. B2**). 
C	VERTICAL DISTANCE FROM THE BRP OF THE SADDLE TO THE CENTER OF THE BOTTOM BRACKET
C	**1.** Hook the end of a measuring tape into the slot of the sliding bracket "B.B. ZERO POINT" (positioned previously in MEASUREMENT A1) where "HOOK" is marked (**REF. C1**); **2.** With the measuring tape hooked, reach into the center of the bottom bracket and locate the distance (**REF. C2**); **3.** Enter the detected measurement in FIELD C. 

D	OFFSET OF MEASUREMENT B (OPTIONAL)
D	- You can enter an offset value in FIELD C that will MOVE the point detected with the vertical rod wedge or “ROD” (MEASUREMENT B) in a positive or negative vertical direction (**REF. D1**): • To MOVE the point downward, enter a NEGATIVE value (example -6 mm) and the calculation point will move downward; • To MOVE the point UP, enter a POSITIVE value (example 6 mm) and the calculation point will move upward; - **NOTE:** In case an offset is used, the distance calculated by the software from the BRP of the saddle to the translated point is DISTANCE 2 (GREEN) (**REF. D2**). 

PROCEDURE FOR MEASUREMENTS (MTB / e-MTB bikes)

- The measurements to be taken in the measurement procedure are: 3 using the reading of values on the millimeter rods and 1 using a measuring tape.

Measurement sequence: B - A - A1 - C - D

B — DISTANCE OF VERTICAL DROP FROM THE BRP OF THE SADDLE TO THE POINT OF THE HANDLEBAR

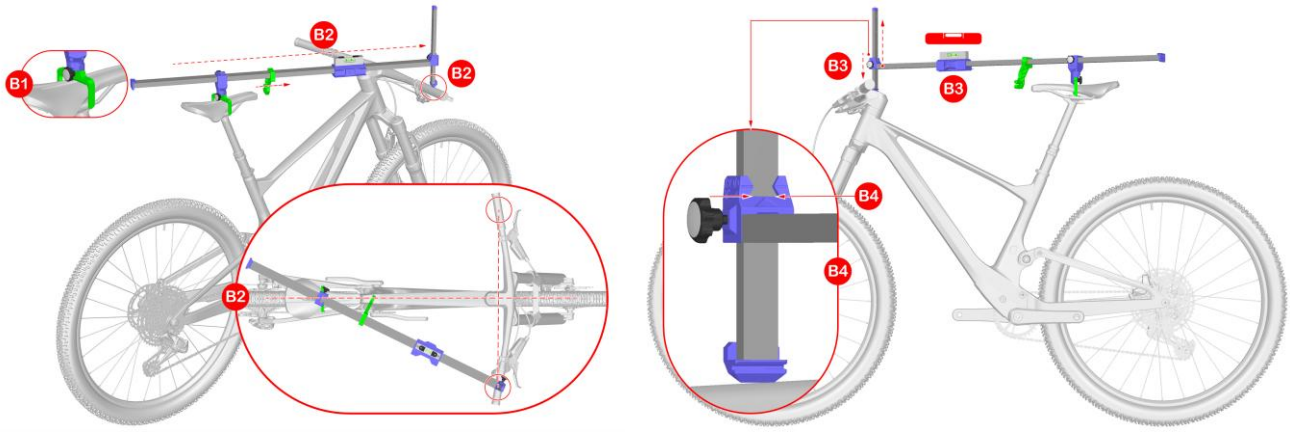
B

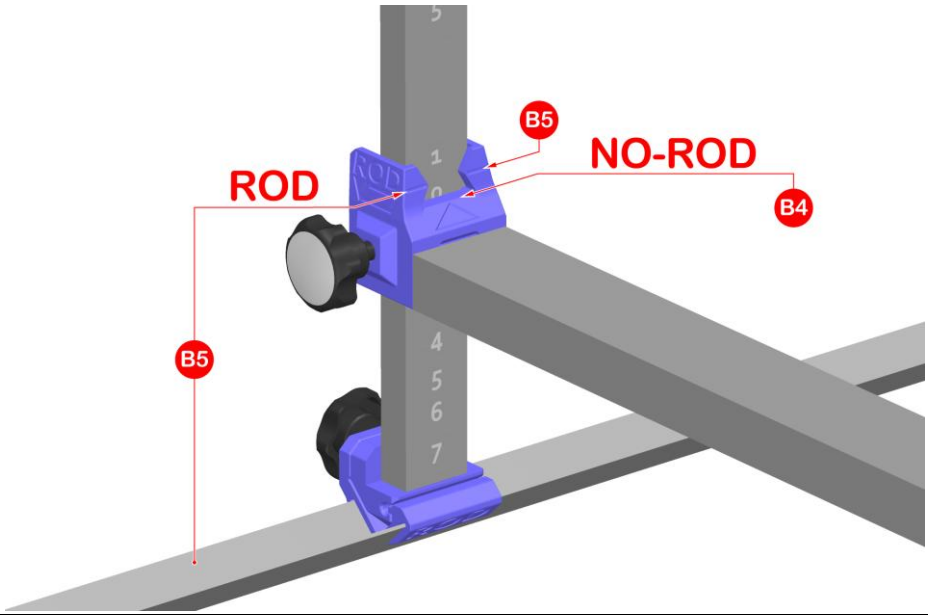
1. Place the BRP caliper at the saddle contact point and make sure the handlebar is perpendicular to the frame axis (front wheel collinear to frame) (**REF. B1**);

2. If necessary, move the sliding bracket “B.B. ZERO POINT” away from the saddle to avoid interference with it;
   - OPEN the HANDLE of the READING BLOCK LOCATED ABOVE THE SWIVEL INTERFACE;
   - TURN and slide the main rod until the measuring wedge of the vertical rod (without the additional “ROD”) reaches the right or left handle grip point at the imaginary axis drawn from the right hadle grip point to the left handle grip point (**REF. B2**);
   - TIGHTEN the HANDLE of the READING BLOCK PLACED ABOVE THE SWIVEL INTERFACE;

3. OPEN the HANDLE of the VERTICAL ROD READING BLOCK;
   - slide the vertical rod until the bubble level is within the horizontal alignment range. (**REF. B3**);
   - TIGHTEN the HANDLE of the VERTICAL ROD READING BLOCK;

4. ENTER IN FIELD B the value read at the arrow printed on the sloping plane of the vertical rod slide block (**REF. B4**);
   - **CAUTION:** Under different conditions, if for some reasons the “ROD” is used, enter the value read at the two lines (- -) located above the arrow printed on the sloping plane of the slide block of the vertical rod (**REF. B5**).





A — HORIZONTAL DISTANCE FROM THE SADDLE BRP TO THE HANDLEBAR POINT

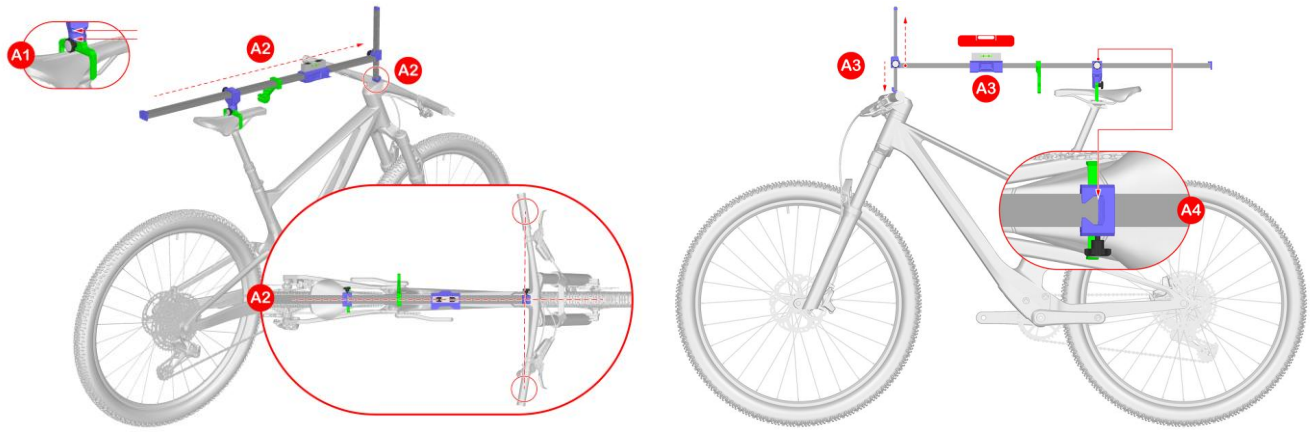
A

1. Rotate the main rod by orienting it along the axis of the frame (**REF. A1**);
   - **NOTE:** The reference line printed on the anatomical caliper holder must coincide with the reference line printed on the anatomical caliper swivel interface;

2. OPEN the HANDLE of the READING BLOCK LOCATED ABOVE THE SWIVEL INTERFACE;
   - slide the horizontal rod to position the measuring wedge of the vertical rod (without the additional "ROD") on the handlebar stem at the imaginary axis drawn from the right handle grip point to the left handle grip point (**REF. A2**);
   - TIGHTEN the HANDLE of the READING BLOCK PLACED ABOVE THE SWIVEL INTERFACE;

3. OPEN the HANDLE of the VERTICAL ROD READING BLOCK;
   - slide the vertical rod until the spirit level falls within the horizontal alignment range (**REF. A3**);
   - TIGHTEN the HANDLE of the VERTICAL ROD READING BLOCK;

4. ENTER IN FIELD A the measurement read on the horizontal main rod at the arrow printed on the sliding block connected to the swivel interface of the anatomical caliper (**REF. A4**).

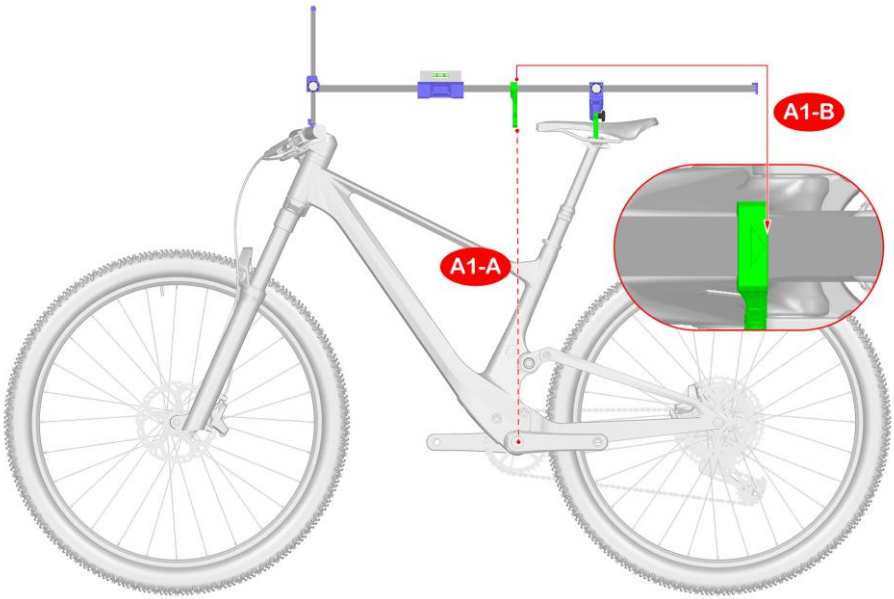


A1 — HORIZONTAL DISTANCE FROM THE CENTER OF THE BOTTOM BRACKET TO THE POINT OF THE HANDLEBAR

A1

1. Without repositioning the instrument, slide the "B.B. ZERO POINT" bracket to the center of the bottom bracket. The edge to be aligned with the center of the bottom bracket is indicated with two arrows printed on the bracket (**REF. A1-A**);
   - **NOTE:** To facilitate this operation, use a laser device or a long spirit level;

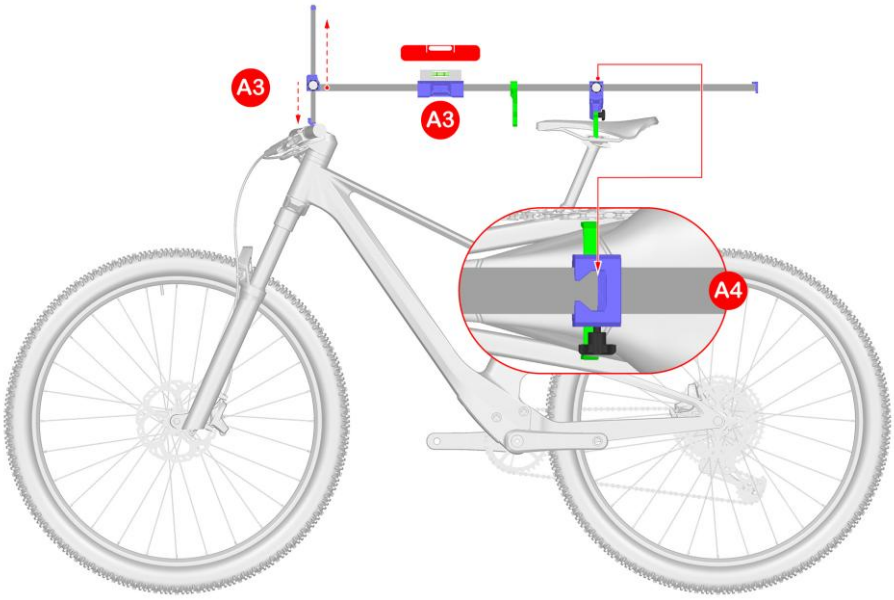
2. ENTER IN FIELD A1 the measurement read on the horizontal main rod at the arrow printed on the sliding bracket "B.B. ZERO POINT" (**REF. A1-B**).



C VERTICAL DISTANCE FROM THE BRP OF THE SADDLE TO THE CENTER OF THE BOTTOM BRACKET

C

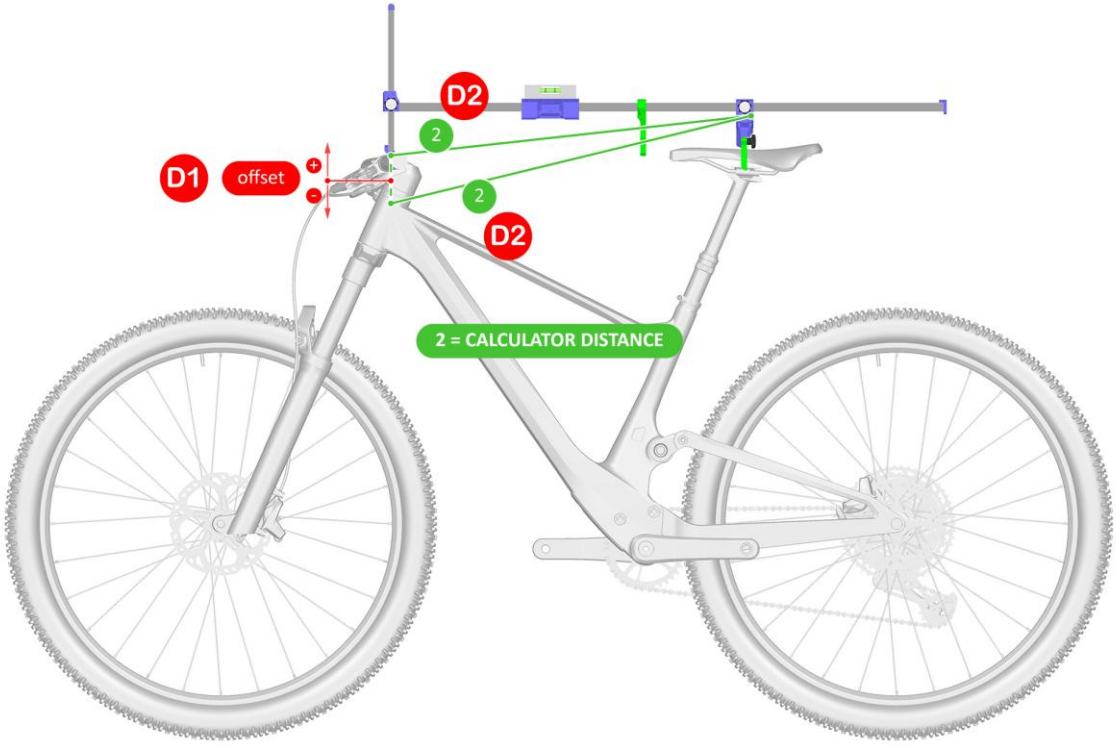
1. Hook the end of a measuring tape into the slot of the sliding bracket “B.B. ZERO POINT” (positioned previously in MEASUREMENT A1) where “HOOK” is marked (**REF. C1**);
2. With the measuring tape hooked, reach into the center of the bottom bracket and locate the distance (**REF. C2**);
3. Enter the detected measurement in FIELD C.



D OFFSET OF MEASUREMENT B (OPTIONAL)

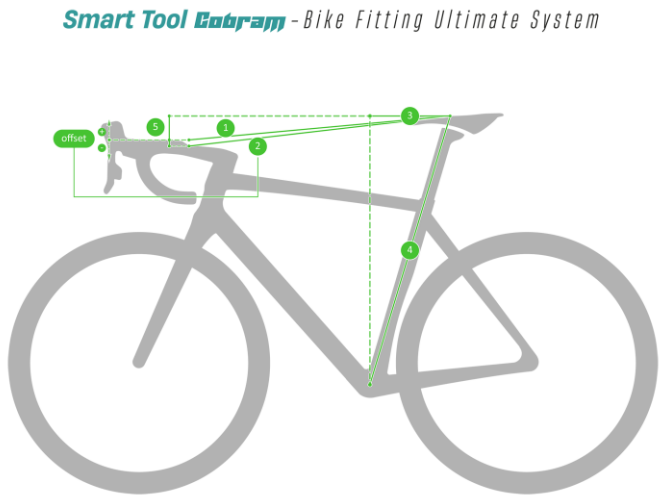
D

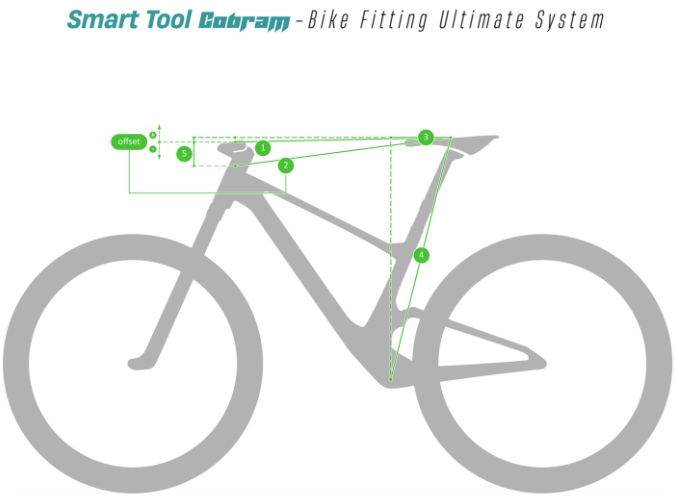
- You can enter an offset value in FIELD C that will MOVE the point detected with the vertical rod wedge or “ROD” (MEASUREMENT B) in a positive or negative vertical direction (**REF. D1**):
  - To MOVE the point downward, enter a NEGATIVE value (example -6 mm) and the calculation point will move downward;
  - To MOVE the point UP, enter a POSITIVE value (example 6 mm) and the calculation point will move upward;
- **NOTE:** In case an offset is used, the distance calculated by the software from the BRP of the saddle to the translated point is DISTANCE 2 (GREEN) (**REF. D2**).



ONLINE CALCULATOR

- Follow the step-by-step procedure for the measurements given in the section "**PROCEDURE FOR MEASUREMENTS**" or directly in the Calculator Online pages;
- The online software "Cobram Bike Fitting Calculator" can be used in Desktop and responsive Mobile version;
- The online software is available in calculation version for ROAD / AERO / GRAVEL or for MTB and e-MTB;
- By entering the required measurements into the online software "Cobram Bike Fitting Calculator", the following distances will be automatically calculated:
  1. Reach from saddle to handlebar
  2. Reach from saddle to handlebar (with optional offset)
  3. Saddle setback distance (from Bottom Bracket to saddle BRP)
  4. Saddle height distance (Bottom Bracket to saddle BRP)
  5. Handlebar drop distance (without optional offset). Reference Distance 1.
     Handlebar drop distance (with optional offset). Reference Distance 2.

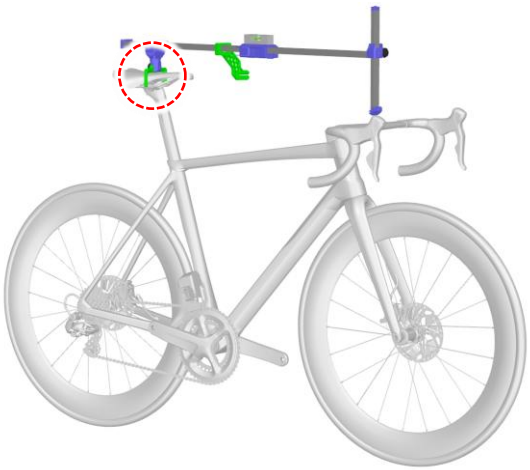




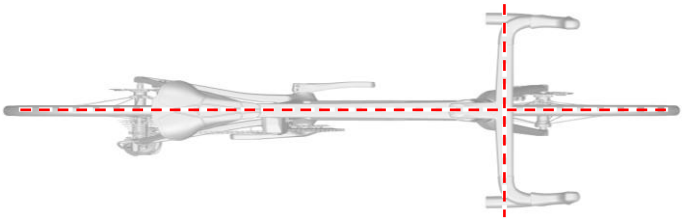
MEASUREMENT/ADJUSTMENT OF BRAKE HOODS (Road/Aero/Gravel Bicycles)

- Place the anatomical center gauge at the saddle contact point (**REF. A**).
- Ensure the handlebar is perpendicular to the frame's longitudinal axis, with the front wheel aligned with the frame (**REF. B**).
- Identify a reference point on the brake hood (**REF. C**). **If adjusting both brake hoods, use the same reference point on each side.**
- The REACH reference distance between the saddle's anatomical center and the chosen point on the brake hood is read on the horizontal mm-graduated main rod (**REF. D**).
- The DROP reference distance between the saddle's anatomical center and the chosen point on the brake hood is read on the vertical sliding mm-graduated rod (**REF. E**). Use the "NO ROD" mark as the reading reference (**REF. F**).

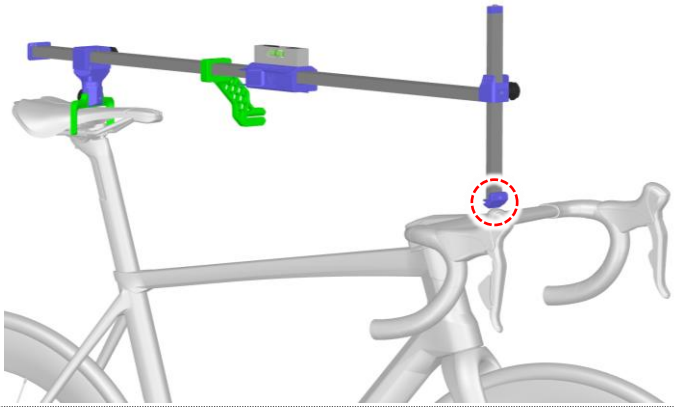
REF. A



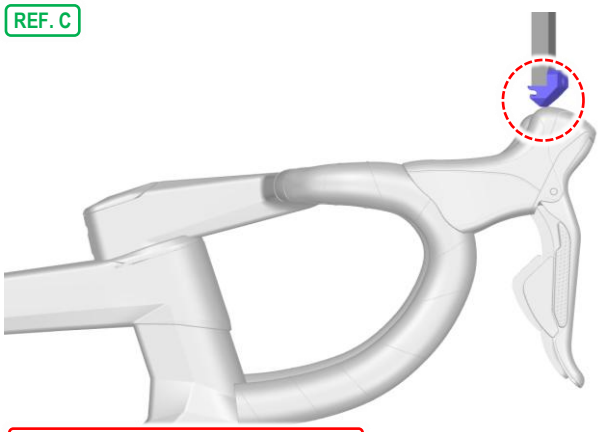
REF. B



REF. C

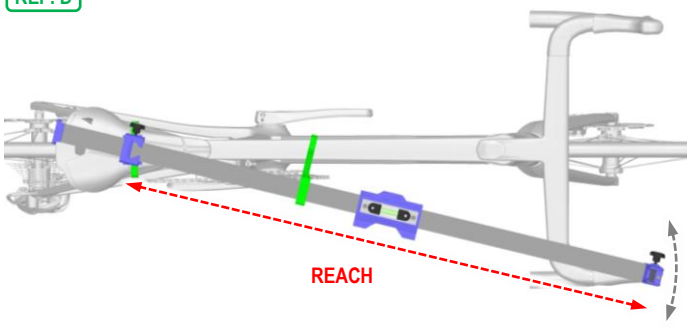


REF. C

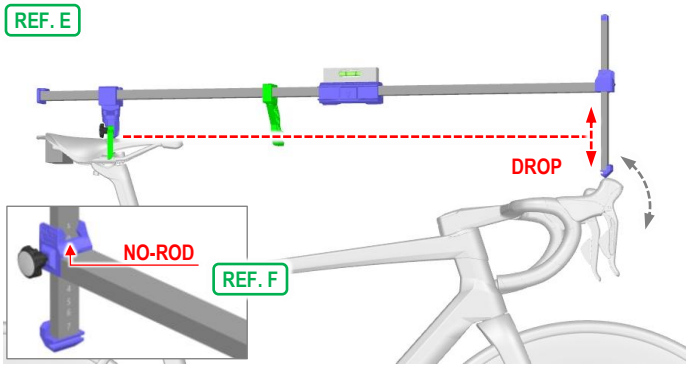


IN THIS CASE, THE REFERENCE POINT IS ON TOP OF THE BRAKE LEVER BODY (HOOD)

REF. D



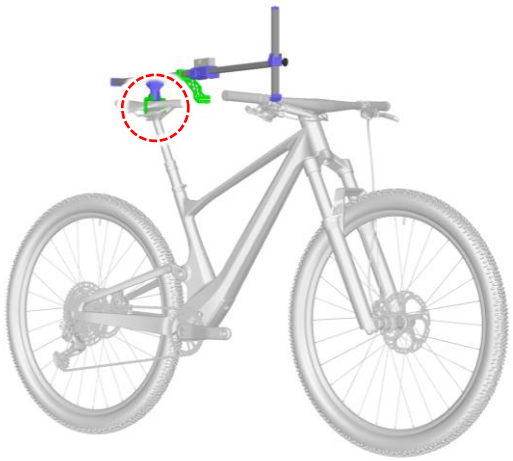
REF. E



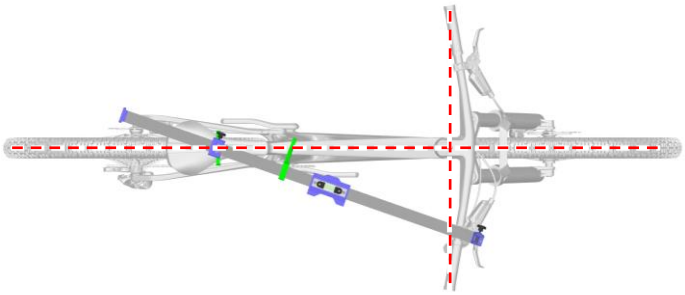
MEASUREMENT/ADJUSTMENT OF BRAKE LEVERS (MTB/e-MTB Bicycles)

- Place the anatomical center gauge at the saddle contact point (**REF. A**).
- Ensure the handlebar is perpendicular to the frame's longitudinal axis, with the front wheel aligned with the frame (**REF. B**).
- Identify a reference point on the brake lever (**REF. C**). **If adjusting both brake levers, use the same reference point on each side.**
- The REACH reference distance between the saddle's anatomical center and the chosen point on the brake lever is read on the horizontal mm-graduated main rod (**REF. D**).
- The DROP reference distance between the saddle's anatomical center and the chosen point on the brake lever is read on the vertical sliding mm-graduated rod (**REF. E**). Use the "NO ROD" mark as the reading reference (**REF. F**).

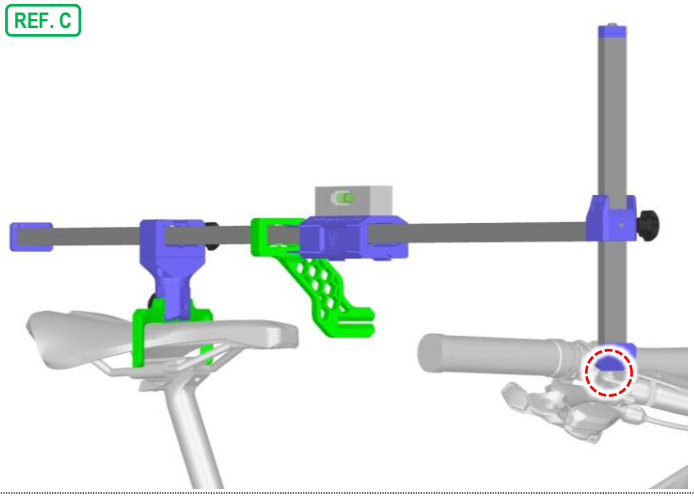
REF. A



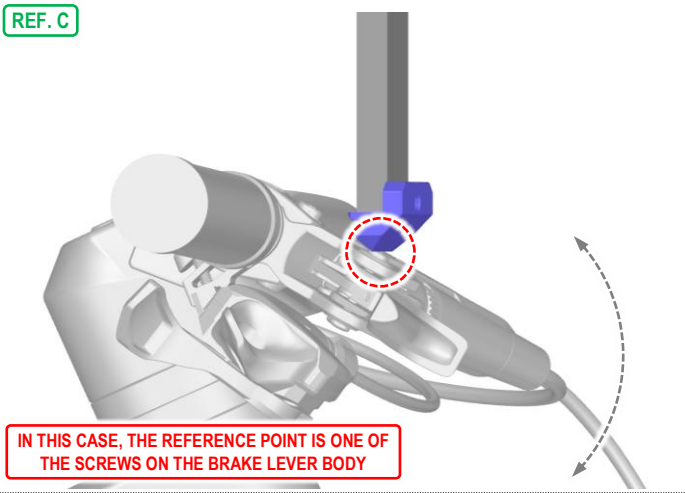
REF. B



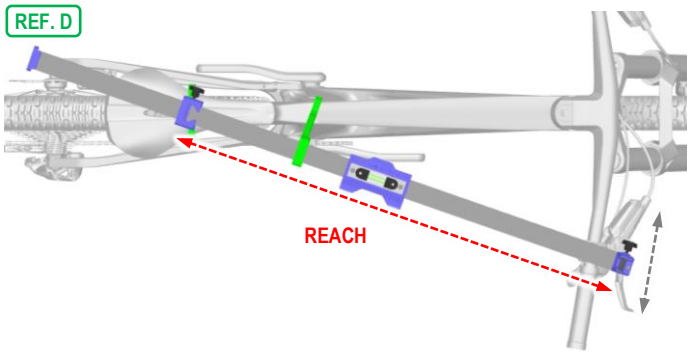
REF. C



REF. C



REF. D



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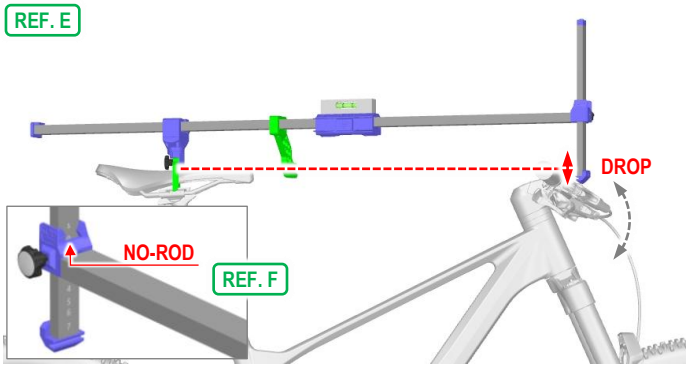
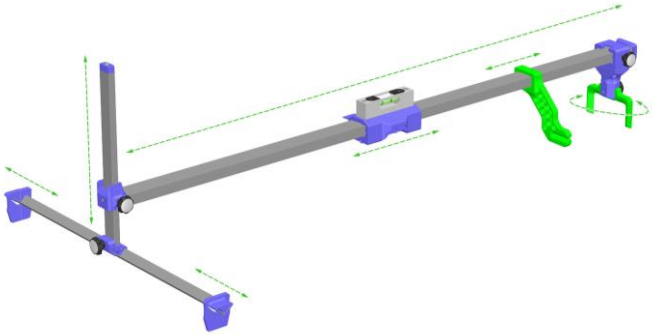
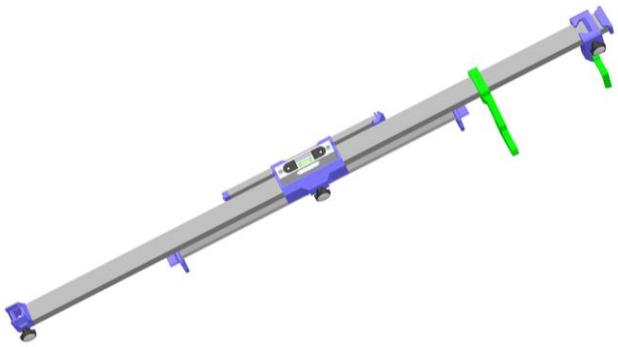


FEATURES

- The spirit level is already installed on the horizontal rod and calibrated with 0.05° resolution digital level (accuracy: ± 0.2°);
- Total size in height: 983 mm;
- Maximum size in width* : 125 mm;
- Maximum size in depth* : 124 mm;
- Maximum size in depth* : 149 mm (with BRP caliper installed);
- Vertical sliding rod length: 266 mm;
- Additional “ROD” length: 495 mm;
- Measurable setback from the anatomical center of the saddle: 15 to 381 mm;
- Measurable saddle height from the anatomical center of the saddle to the bottom bracket: no limit;
- Measurable distance from the anatomical center of the saddle to the point of the handlebar: 554 to 935 mm;
- Measurable vertical distance from the anatomical center of the saddle to the handlebar point (without ROD): -150 +44 mm;
- Measurable vertical distance from the anatomical center of the saddle to the handlebar point (with ROD): -155 +39 mm
- Made of PETG 0.2 mm / 0.12 mm layer molded, aluminum metric graduated rods, plastic locking handles and stainless steel components. High-precision spirit level with adjustable calibration;
- Weight: 615 grams;
- Accuracy in use: ± 1 mm based on the accuracy of the user setup.

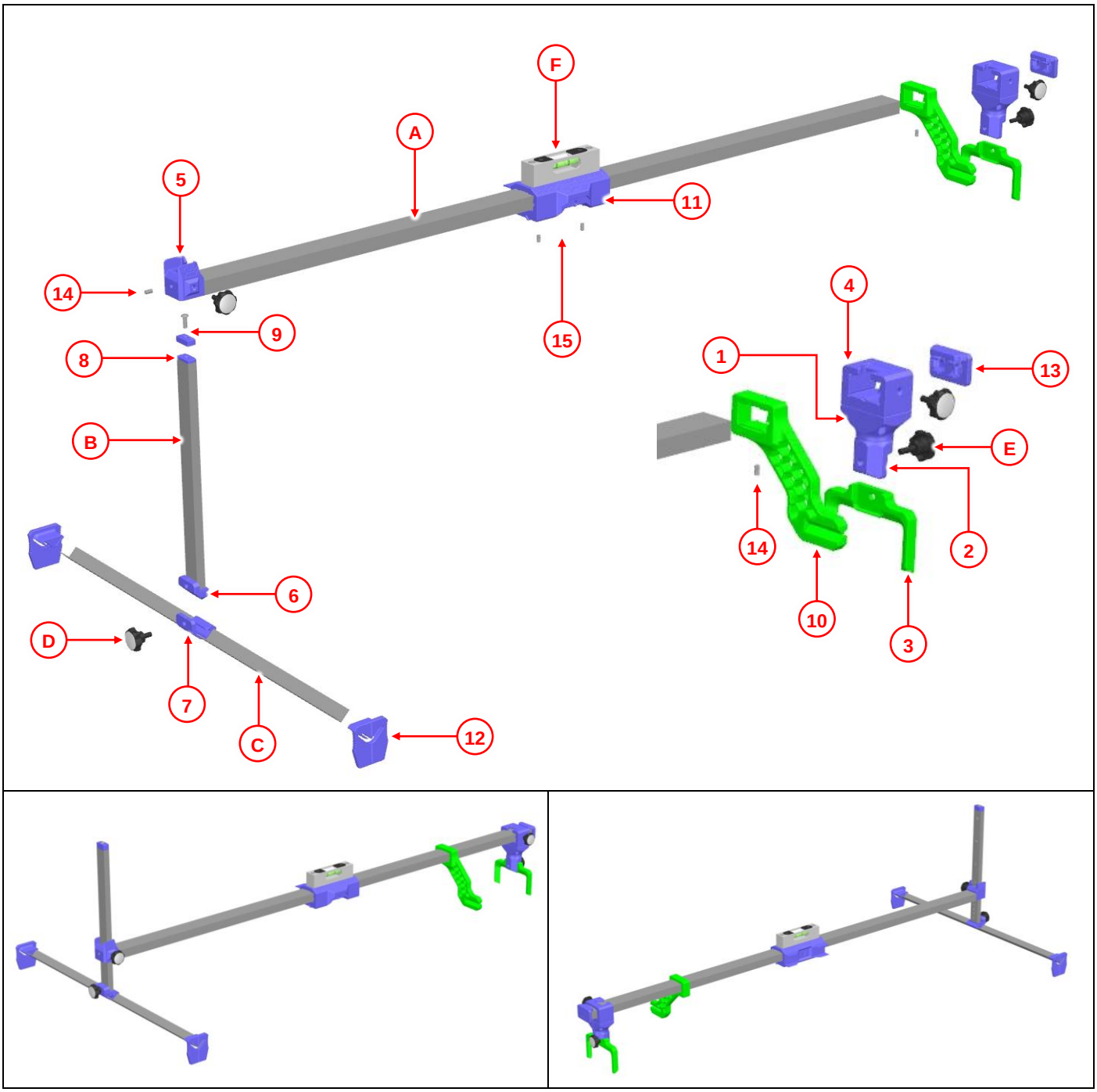
* referred to instrument in transport configuration.





COMPONENTS

BILL OF MATERIALS COMPONENTS	
A - Aluminum rod for horizontal measurement (30x15x950mm)	Part_006: Wedge of the vertical rod *
B - Aluminum rod for vertical measurement (20x10x240mm)	Part_007: Additional “ROD” interface *
C - L-shaped aluminum “ROD” (15x15x495mm)	Part_008: Vertical rod cap *
D - Locking handles (4 pcs)	Part_009: Anti-fall cover for M4 nut *
E - Precision level spirit	Part_010: “BB Zero Point” sliding bracket
F - Precision spirit level	Part_011: Central support for level and additional rod holder
Part_001: Connection interface	Part_012: Sliding wings additional for “ROD”
Part_002: Rotating support for Anatomical Caliper *	Part_013: Horizontal rod profile cap
Part_003: Anatomical center caliper (70-72-75 or 80mm)	Part_014: M4x8 threaded pins (2 pcs) (for friction)
Part_004: Horizontal sliding support	Part_015: M4x8 threaded pins (2 pcs) (for locking)
Part_005: Vertical rod support *	* non-removable parts!


F
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B
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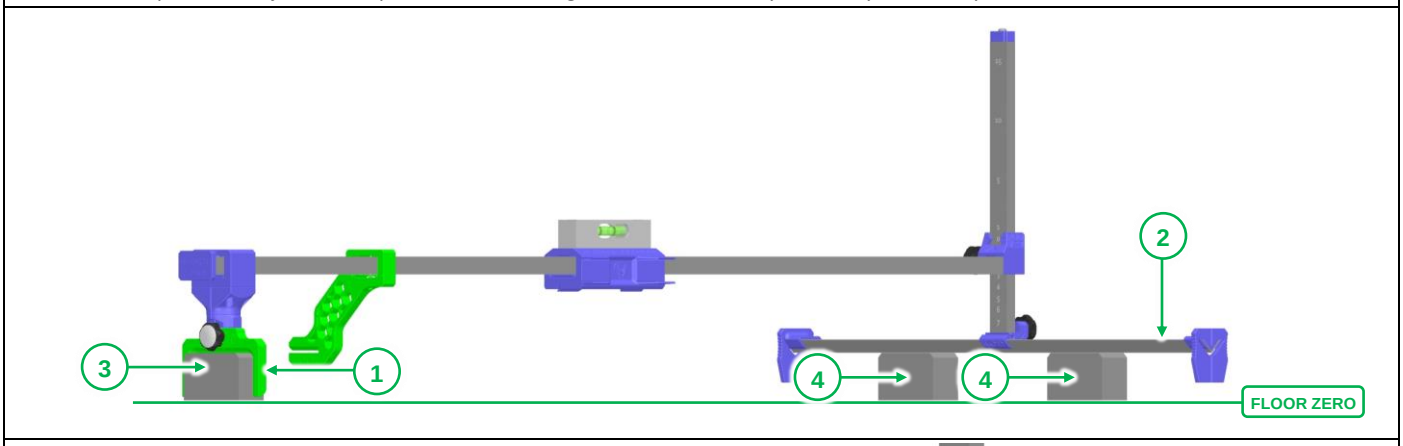
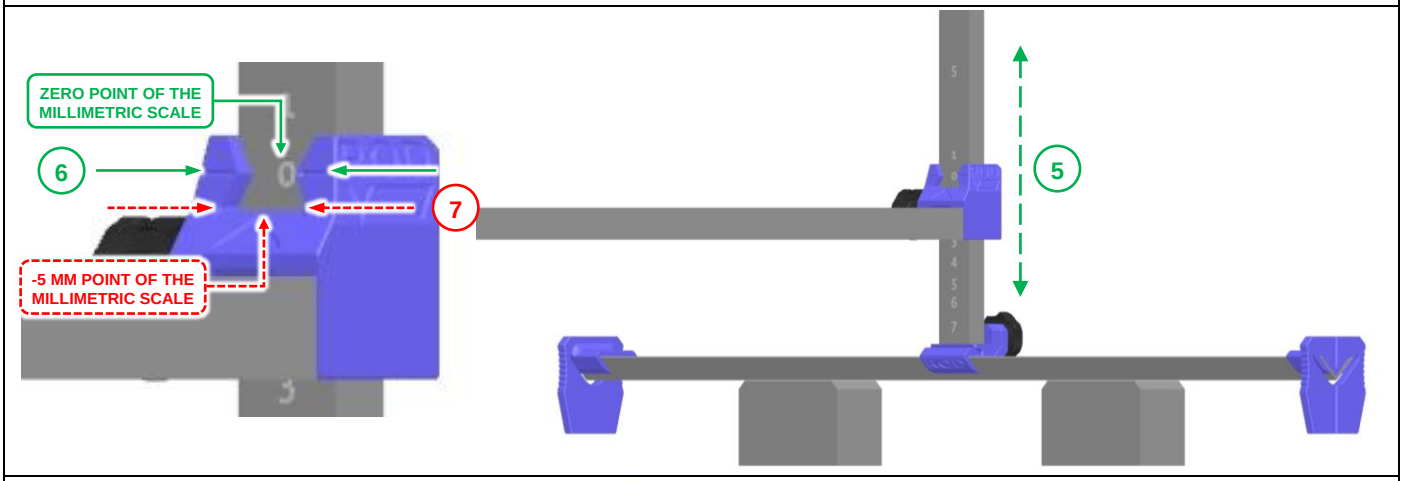
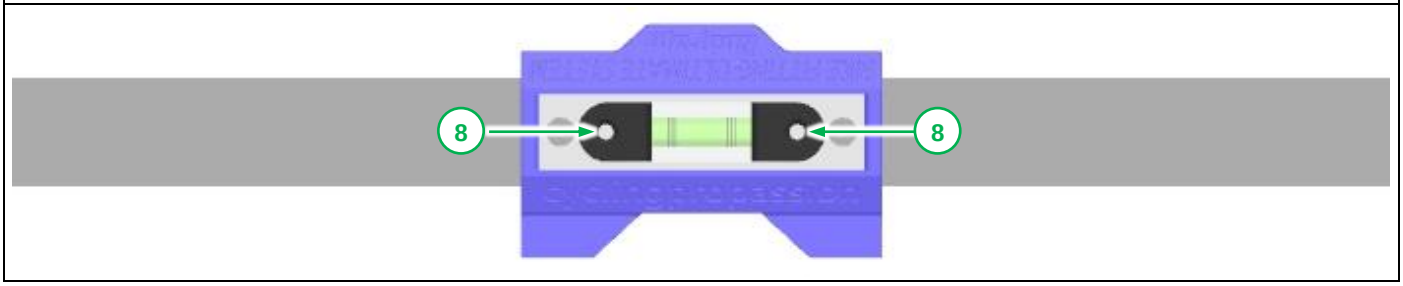
C
12

INSTRUMENT USE AND MAINTENANCE WARNINGS

1. In parts 14 are located M4 threaded set screws with which it is possible to increase the friction between the sliding of the blocks and the horizontal aluminum rod. Screw in slightly to increase friction and unscrew to decrease sliding friction. Over time it may happen that the sliding parts are more loose in which case adjust the threaded set screws.
   In part 11 the two M4 threaded screws are used to lock the part to the horizontal aluminium rod.
2. PRESERVE THREADED HOLES: when screwing the handles into parts 2 -4 - 5 - 6 - 11 make sure the threaded pin screws in without forcing! If not, unscrew and screw the handle correctly.
3. Check the leveling of the spirit level more or less every 100 use sessions as follows:
   - Identify a plane that is leveled to zero by verifying it with a spirit level (other than the instrument level) or a digital level (**FLOOR ZERO REF.**);
   - Install the BRP caliper on the swivel interface (**REF. 1**);
   - Install the secondary horizontal "ROD" with "V" profile (**REF. 2**);
   - Take three supports/spacers with the same height (greater than 38 mm) (**REF. 3 and REF. 4**);
   - Place a support under the center plane of the BRP caliper (**REF. 3**);
   - Place a support under the "V" profile of the "ROD" (**REF. 4**);
   - Raise or lower the vertical sliding rod (**REF. 5**) block until the two lines (- -), located above the arrow printed on the sloping plane of the block, coincide with the value 0 mm (**REF. 6**). The arrow printed on the sloping plane of the block will coincide with the value -5 mm (**REF. 7**);
   - Using a crosshead screwdriver, adjust the zero of the spirit level installed on the main rod: screw **WITH MODERATE FORCE** one of the two screws while compensating for the unscrewing of the other screw until the air bubble is centered (**REF. 8**).
4. In case of accidental bumps to the spirit level, proceed with the leveling check given in POINT 3.
5. Do not expose the object to temperatures exceeding 30°C and/or directly to UV rays, as it may deform.







SLIDING OF PARTS

TYPE B sliding parts may initially have difficulty sliding on the shafts when the tool is first used. However, with time and use, the internal push tabs will adapt to the shaft section, facilitating proper sliding. If there is significant friction, slide the component repeatedly until you feel the shaft warming slightly. Wait approximately 20-30 minutes for the material to stabilize and return to normal temperature. Then, remove the component from the shaft, clean the shaft with a damp cloth, and remove any residue from the inside of the component using compressed air or a nylon bristle brush.