GEMINI

Pröpus Versions 2022

(Sizing Technical Document)

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GEMINI COMPOSITES, S.L.
Registered in the Commercial Registry of Barcelona in Volume 45983, Sheet 180, Page B-505942
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DOCUMENT SECTIONS

01. STATUS QUO

STEM MEASURMENT

As it is known, in order to achieve correct biomechanics on the bike, the two main parameters that a cyclist must know when configuring the stem of his handlebar are **the length and the drop** of the subject.

Although manufacturers have popularly offered their range of sizes by a combination of the length of the stem and its angulation, **there is no standard for the measurement of stems.**

However, there is a problem around this conventionally established measurement system: defining a dimension of stem length next to its drop angle is not enough to determine the exact resulting position of the handlebar. As indicated in figure 1, it could happen that two or more bar-stem configurations share the same stem length and angle, but have them located at different heights, resulting in two different handlebar positions.

This degree of freedom in the stem size measurement system generates a dramatically direct effect on the correct biomechanical fit of a bicycle, which cyclists can notice, for example, when changing their stems to another model or brand that claim to be the same size.

As a result of detecting this problem, in GEMINI we measure stems by using a system based on the determination of the specific coordinates of the center of the handlebar relative to its mounting reference point.

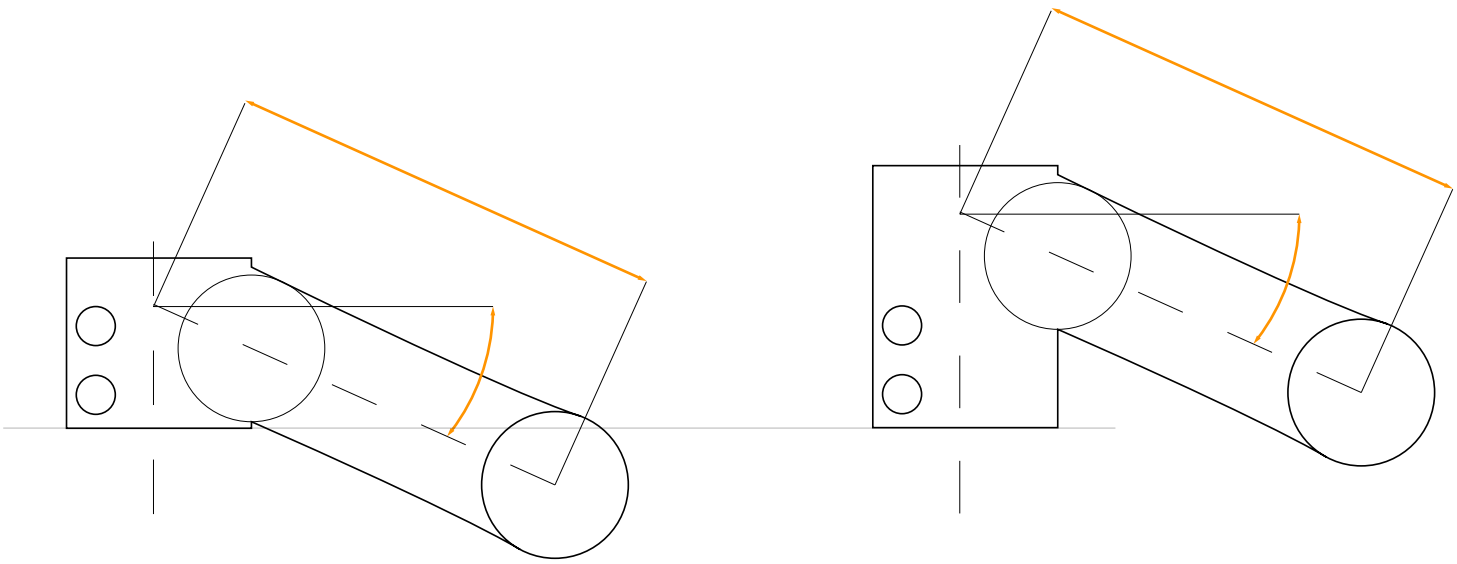

Figure 1

02. MEASURMENT SYSTEM
COODINATES BASED STEM MEASURMENT SYSTEM

As any coordinates based measurement system, a reference point must be specified relative to which all measurements must be taken.

Other existing systems based on coordinates take specific points of the bicycle as reference, such as the center of the bottom bracket.

However, conditioning the measurements to a point external to the system, and capable of changing for each bicycle, is a bad solution.

In GEMINI, the origin of the system has been determined as the point of intersection between the steering axis of the bicycle (Steering Axis) and the upper mounting plane of the steering (Head tube mounting plane).

Once the origin of coordinates is defined, the measurements that determine each stem size configuration are the following: stem length (Stem Lenth) and fall or drop (Offset). Both measurements indicate longitudinal values in millimeters, perpendicular to each other, from the origin of coordinates to the virtual axis of the handlebar tube (Handlebar Central Axis Midpoint). These two measurements act in turn as horizontal and vertical coordinates determining a specific position in space.

Essentially, the improvement of this system in favor of achieving a precise stem configuration lies in the fact that it indicates the drop of the handlebar as a deviation parallel to the upper mounting plane, instead of indicating an angle without specifying any height reference point.

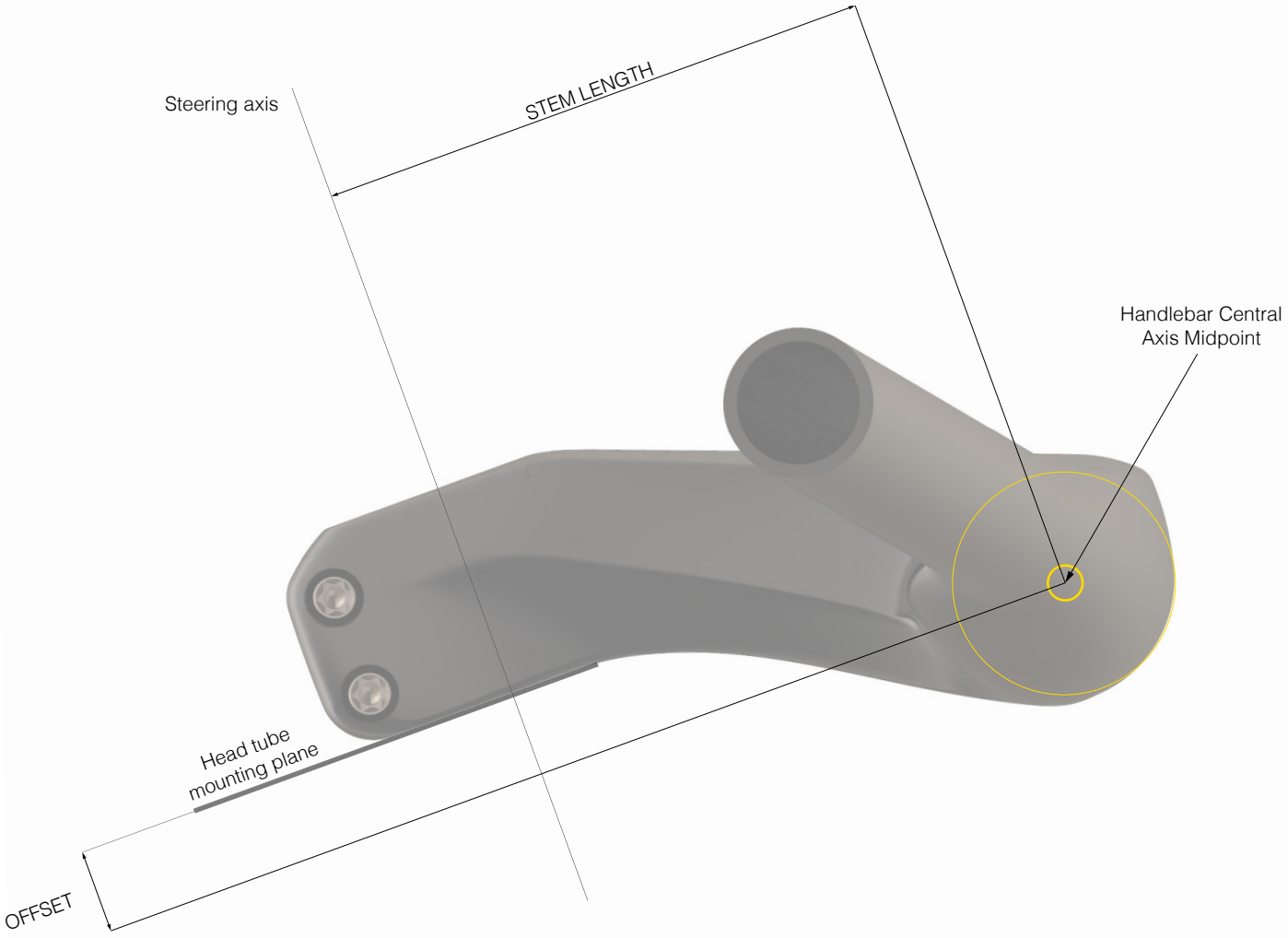

Figure 2

AVAILABLE PRÖPUS SIZES

Using our coordinates based measurement system explained in the previous section, we can clearly differentiate each available size with a specific coordinate, which indicates the resulting center of the handlebar axis for each stem option.

To facilitate interpretation of the data, the full graph is shown on top of a reference image of a Pröpus of 80mm of stem length, and with an offset of -12mm.

The sizes shown in the chart are available, with stem lengths from 50mm to 100mm, and with offset options from +3mm to -25mm for the longer options.

The totality of **11 different sizes** (5 with 3 mm drop, 4 with -12 mm drop, and 2 with -25 mm drop) make possible, beside the use of spacers if necessary, a perfect biomechanical configuration of the handlebar-stem assembly.

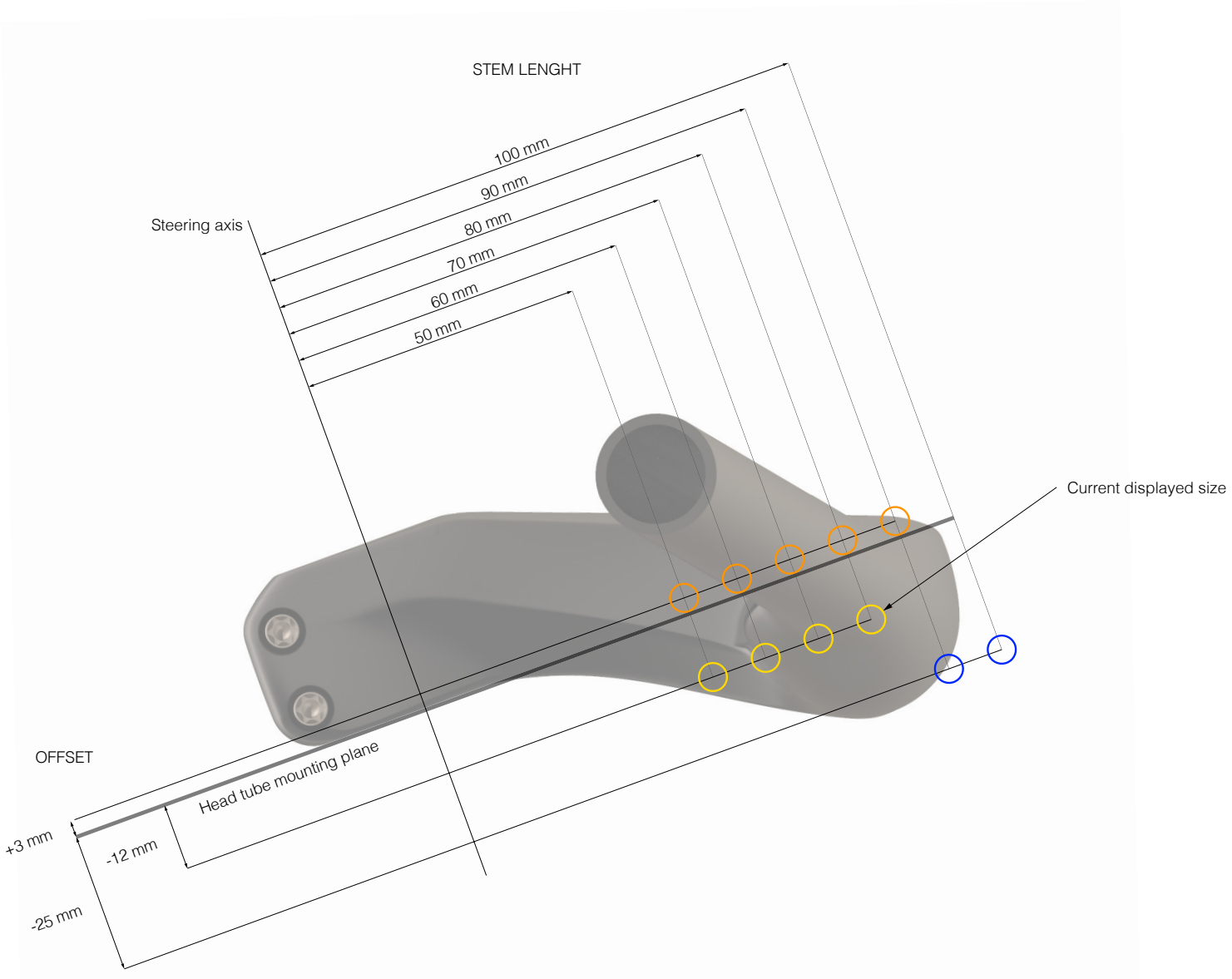

Figure 3

REFERENCE ANGULATION

Since cyclists have historically been used to knowing the drop angle of their stem, we decided to create an approximate reference measurement of the angle of Gemini handlebars.

To make this approximation and to be able to measure the different angles, with values close to those indicated by the different manufacturers, we have taken as reference point the virtual intersection between the steering axis and the height of the second stem bolt.

With these reference angles, riders who currently know their stem's drop angle will be able to find their perfect Gemini.

DIRECT MOUNT

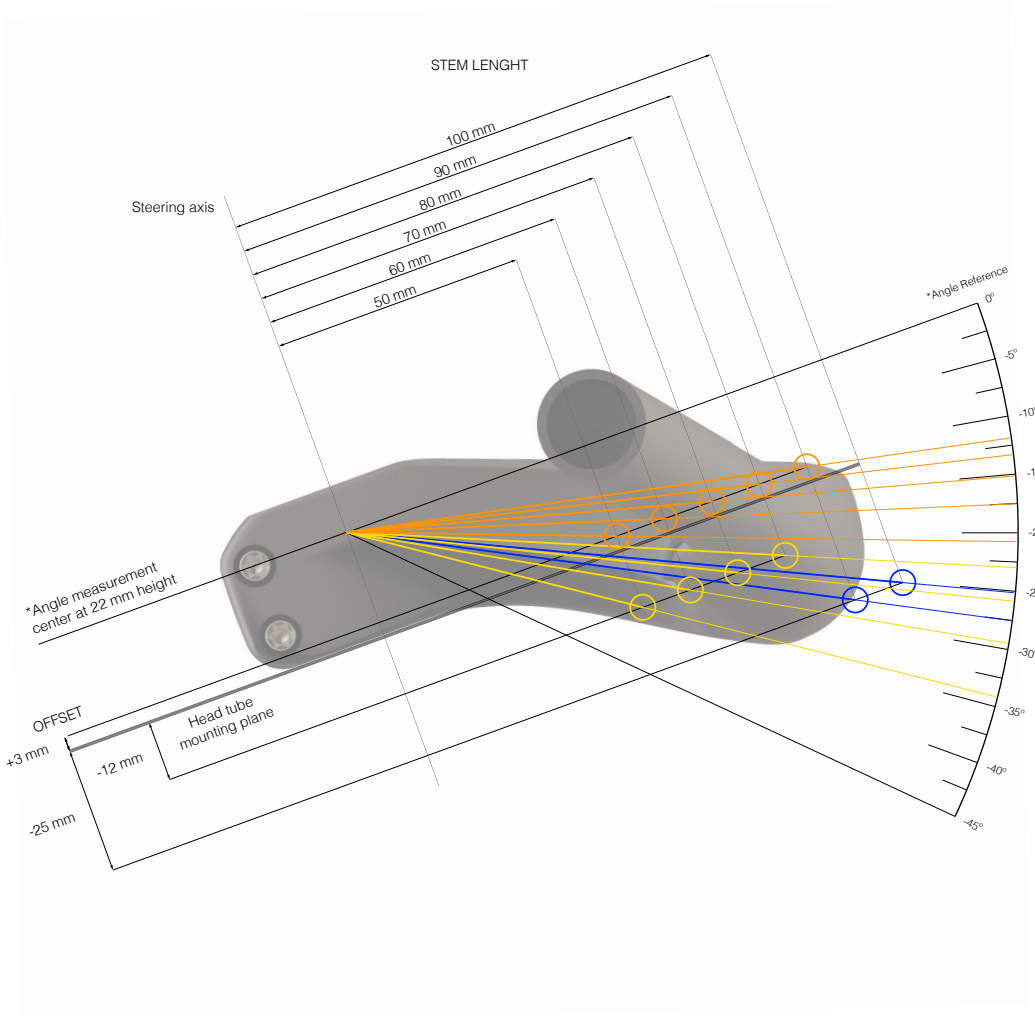

Figure 4

However, it could happen that the Pröpus size configurations do not sufficiently fit the geometric needs of some cyclists. As usual, for these specific cases the geometry can be corrected by using spacers.

To avoid an incorrect spacers configuration, and/or assuming that a cyclist wishes to find the Gemini configuration equivalent to his current stem, we have provided this document with the necessary graphs to compare the geometries of different sizes from their direct mount configuration, to the use of up to 2 x 5mm spacers, with a total lift range of +10mm.

For the search for an equivalent configuration, we recommend starting from the selection of the desired stem length, and then searching in graphs 4, 5, 6 or 7, a similar angle of the currenty used stem.

1 SPACER MOUNT (5 mm)

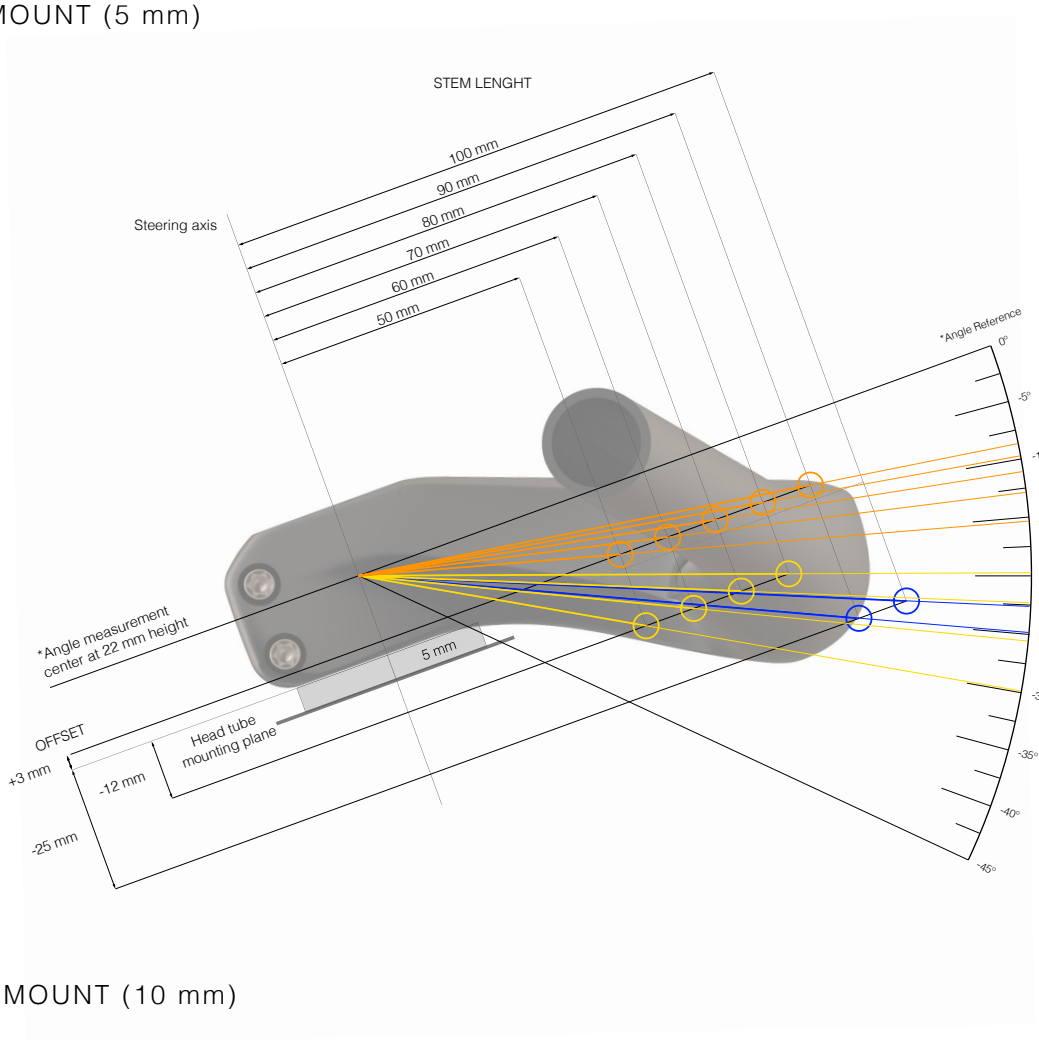

Figure 5

2 SPACERS MOUNT (10 mm)

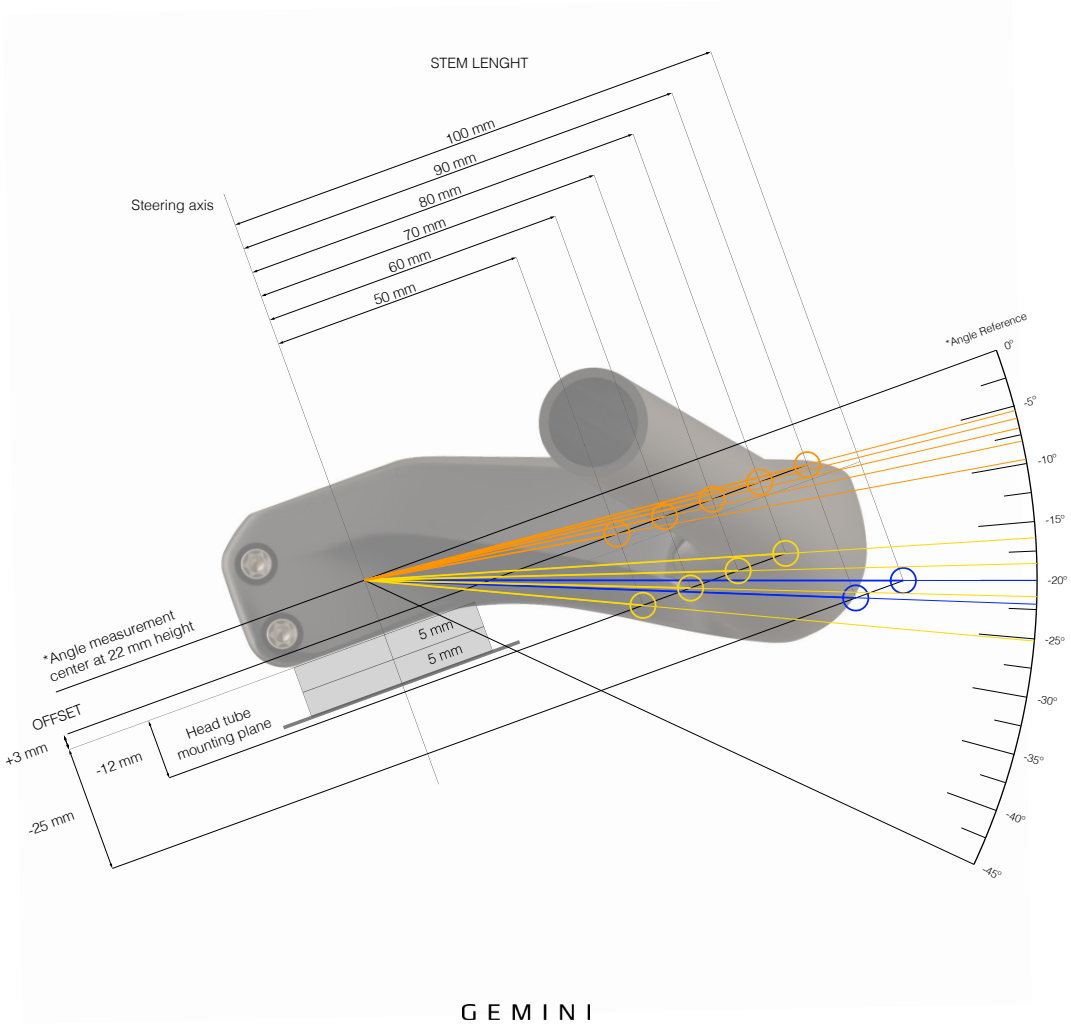

Figure 6

ALL POSSIBLE CONFIGURATIONS

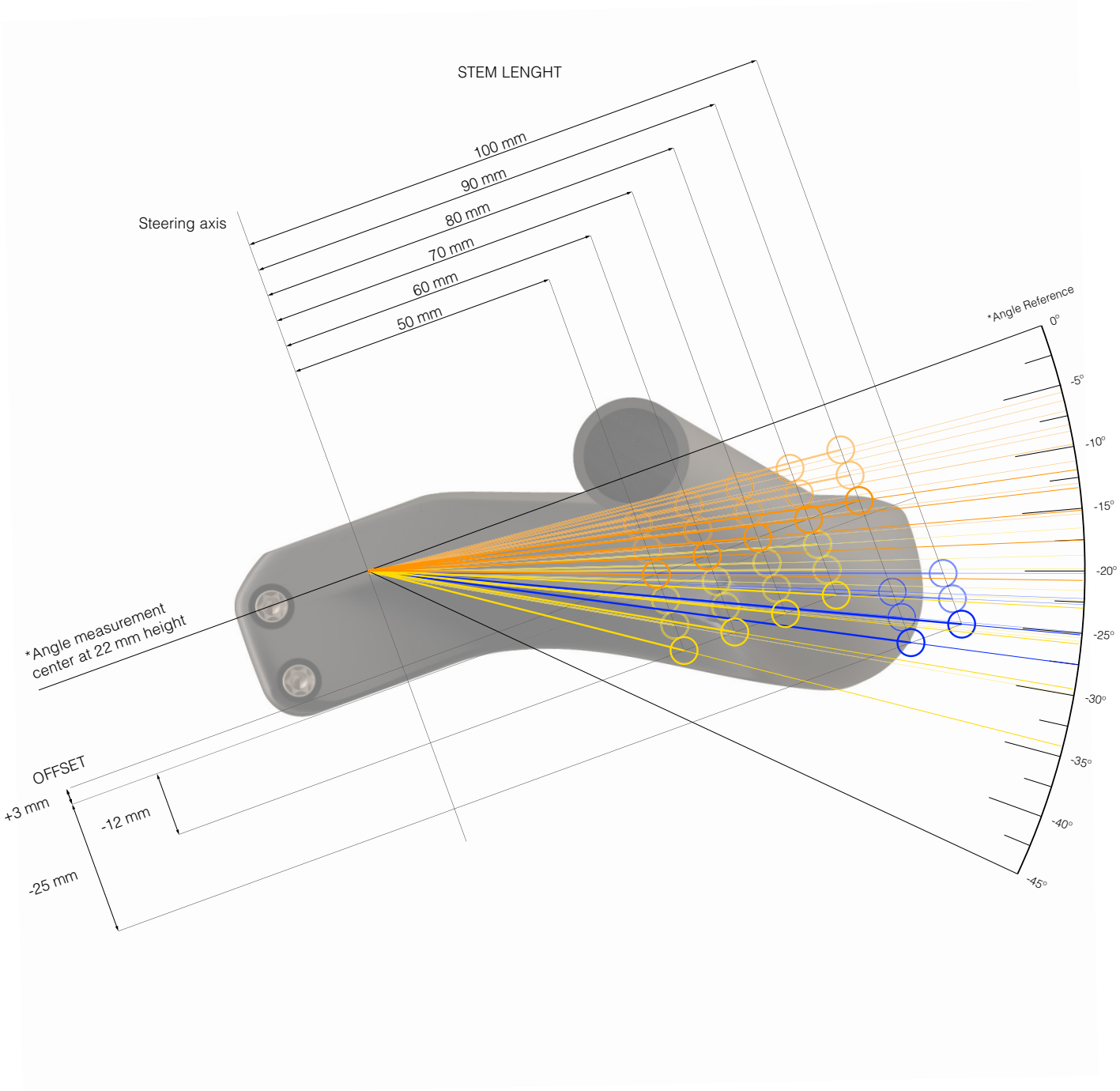

Figure 7

PRÖPUS MOUNT
FORK TUBE LENGTH FOR EACH CONFIGURATION

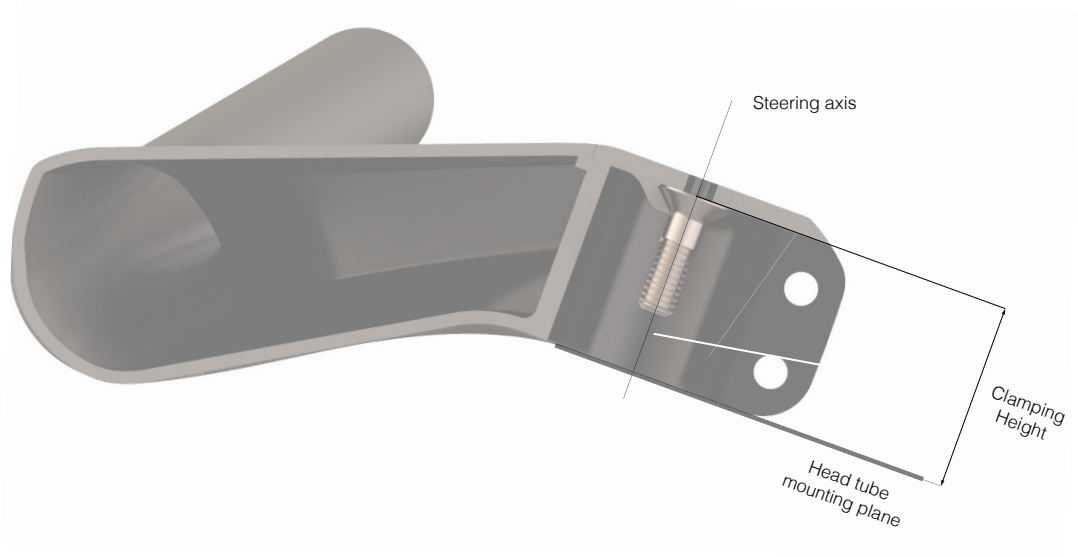

Figure 8

Clamping Height for a direct mount configuration		
Size (Offset)	**Effective drop from mounting plane**	**Clamping Height**
+3 mm	+3 mm	**29 mm**
-12 mm	-12 mm	**29 mm**
-25 mm	-25 mm	**29 mm**

Table 1

Clamping Height for a 1x5mm spacer configuration		
Size (Offset)	**Effective drop from mounting plane**	**Clamping Height**
+3 mm	8 mm	**34 mm**
-12 mm	-7 mm	**34 mm**
-25 mm	-20 mm	**34 mm**

Table 2

Clamping Height for a 2x5mm spacers configuration		
Size (Offset)	**Effective drop from mounting plane**	**Clamping Height**
+3 mm	13 mm	**39 mm**
-12 mm	-2 mm	**39 mm**
-25 mm	-15 mm	**39 mm**

Table 3

03. SIZES OVERVIEW

AVAILABLE CONFIGURATIONS

Figure 9

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