Maker Tom
Autodarts System
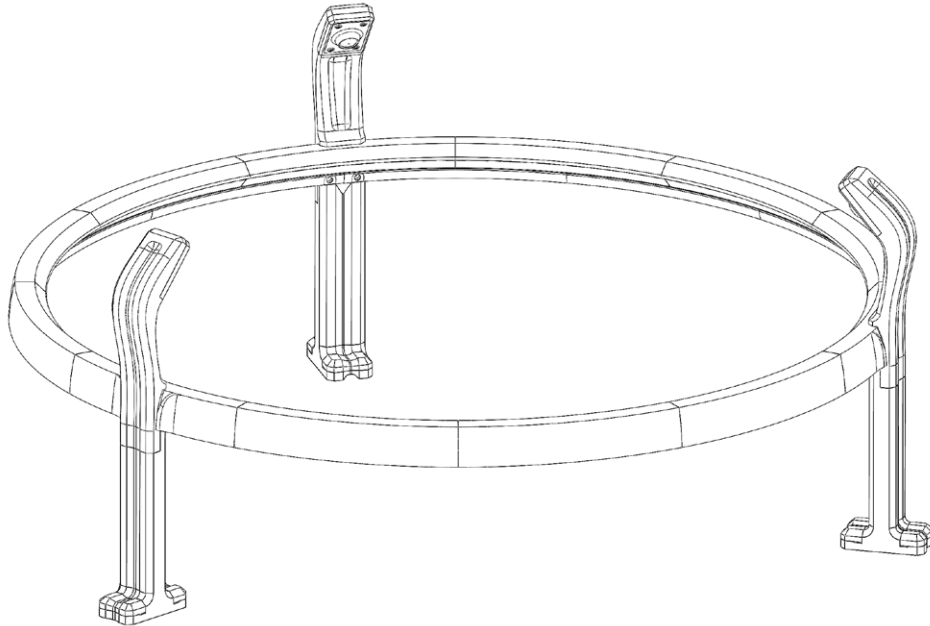
Assembly manual
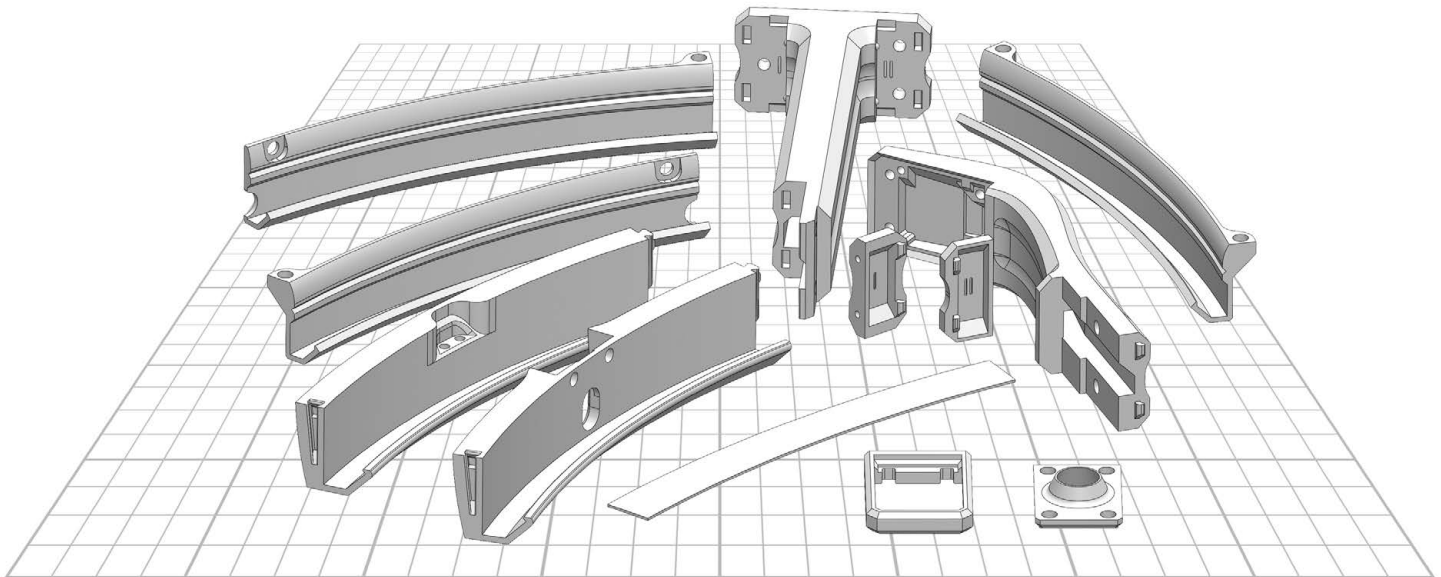
TABLE OF CONTENTS
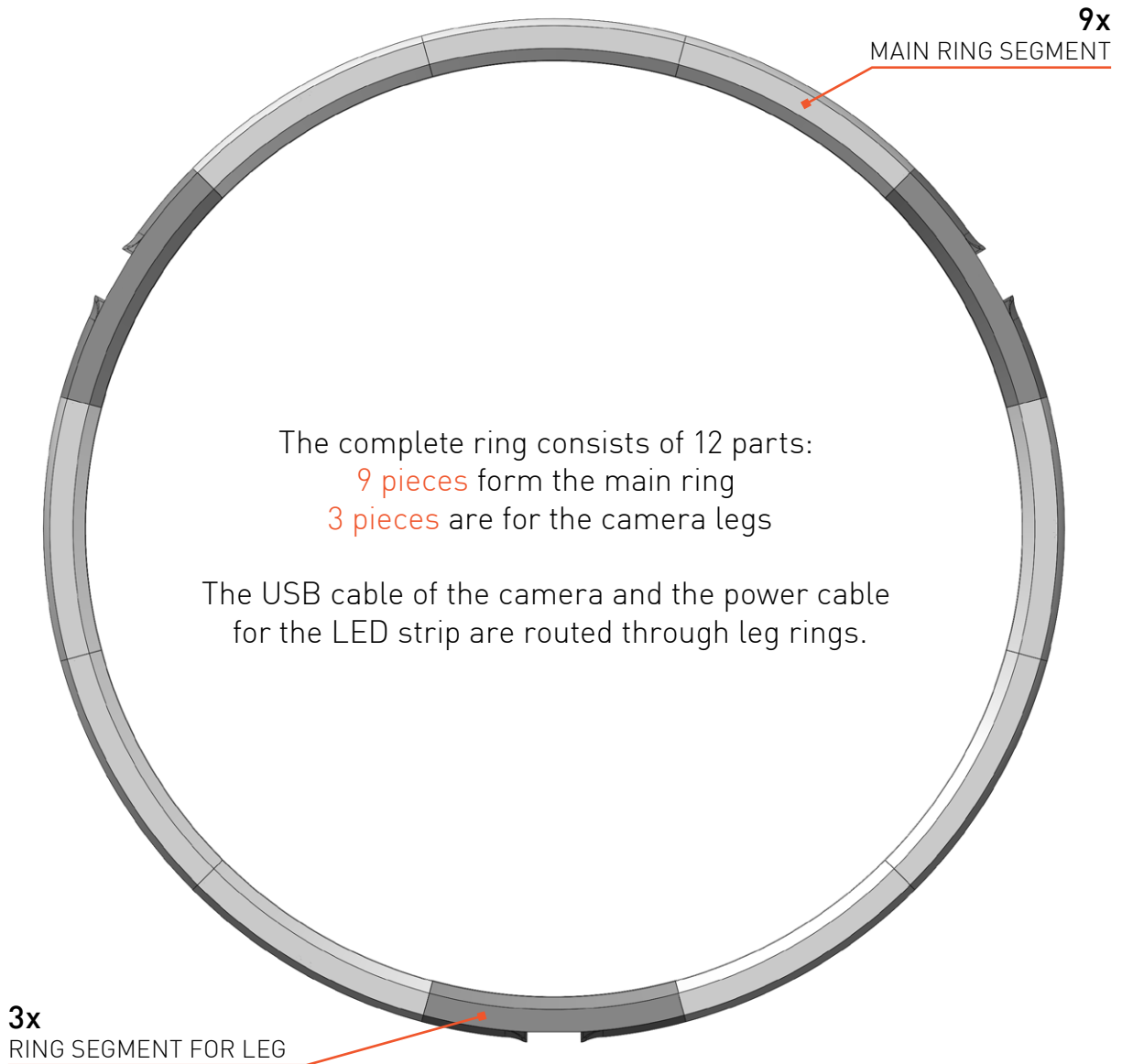
PARTS

Illustration of parts and their printing orientation.

RING

The complete ring consists of 12 parts:
9 pieces form the main ring
3 pieces are for the camera legs

The USB cable of the camera and the power cable
for the LED strip are routed through leg rings.

3x
RING SEGMENT FOR LEG

RING SEGMENTS

9x
MAIN RING SEGMENT

3x
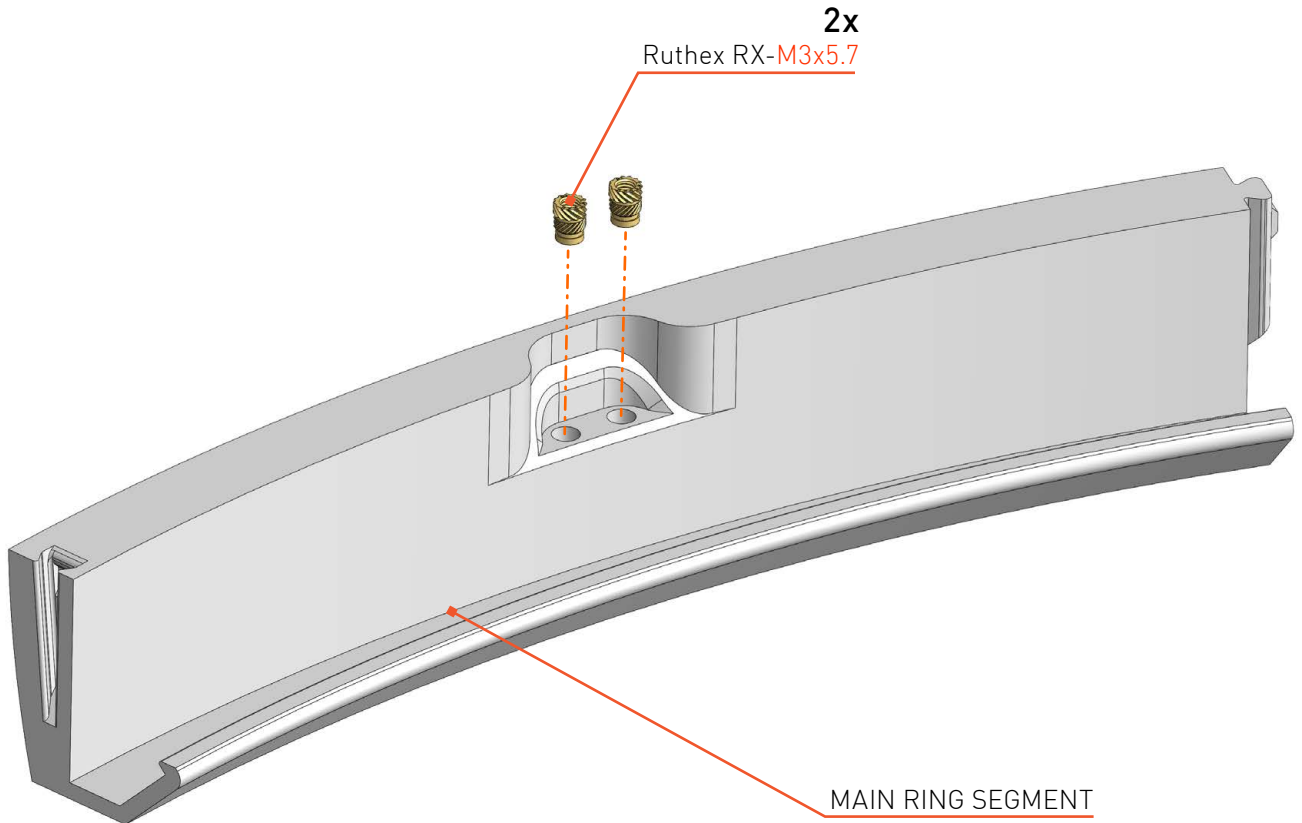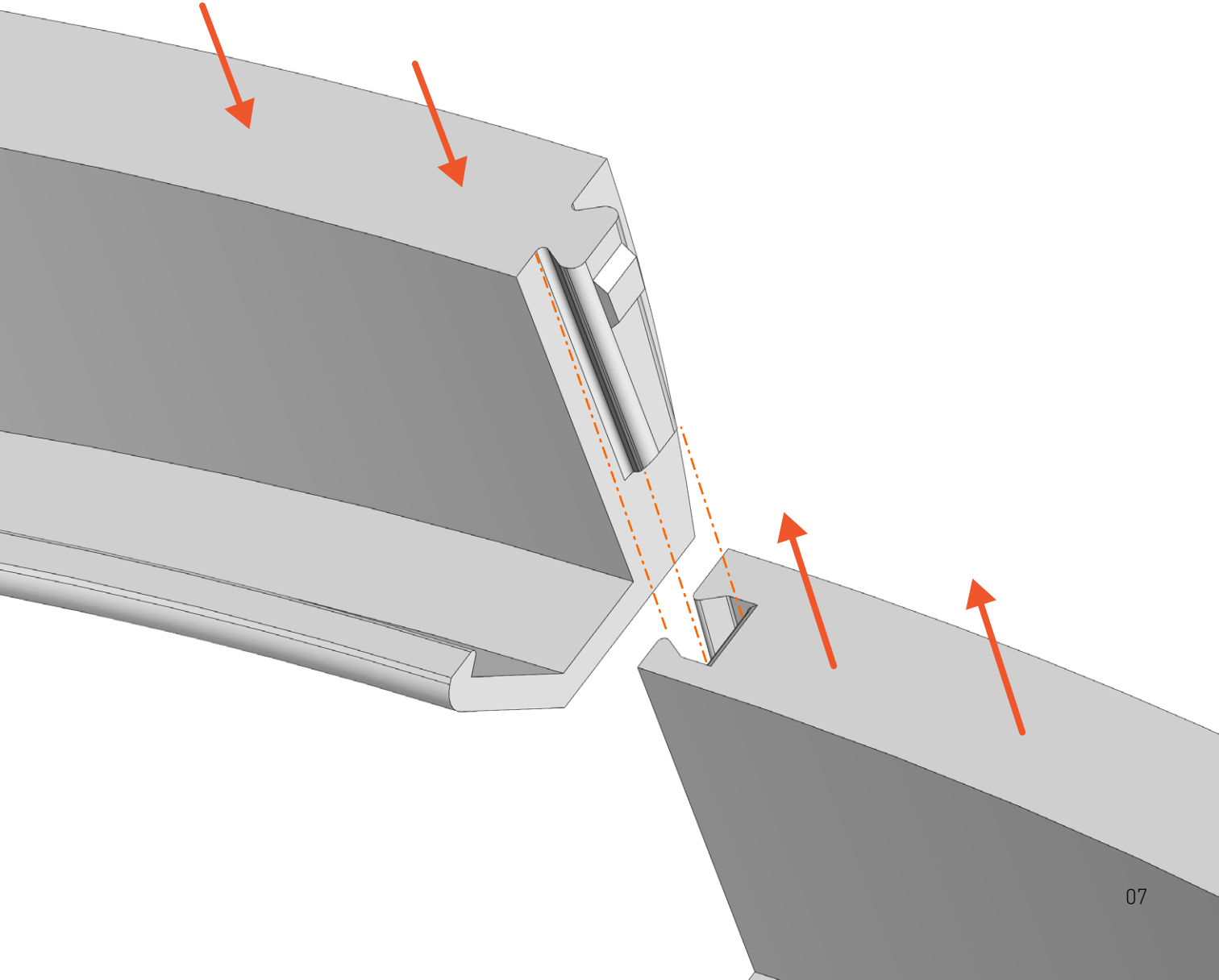RING SEGMENT FOR LEG
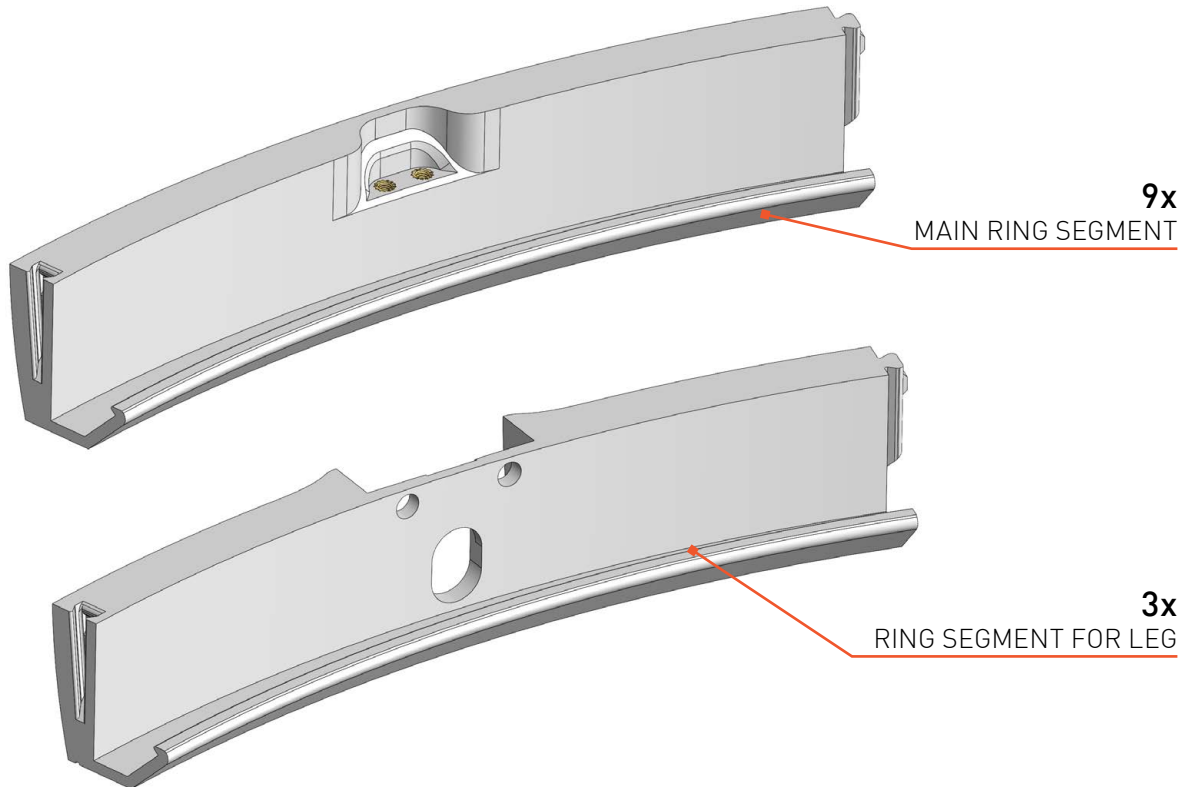
MAIN RING SEGMENT ASSEMBLY

Using a soldering iron, carefully heat and press in
the following Ruthex threaded inserts:

**2x**
Ruthex RX-M3x5.7

MAIN RING SEGMENT

CONNECTING THE RING SEGMENTS

The segments are connected to each other with a click system.
Simply push them together until you hear a click.

TYPES OF INNER RING SEGMENTS

Inside the main ring there is an additional inner ring.
It not only strengthens the entire structure,
but also prevents light from the LEDs from leaking through the joints.
It also creates a groove for the diffuser.

6x
INNER RING SEGMENT

3x
INNER RING SEGMENT LEG
left

3x
INNER RING SEGMENT LEG
right

INNER RINGS SEGMENTS

2x
screws M3x12
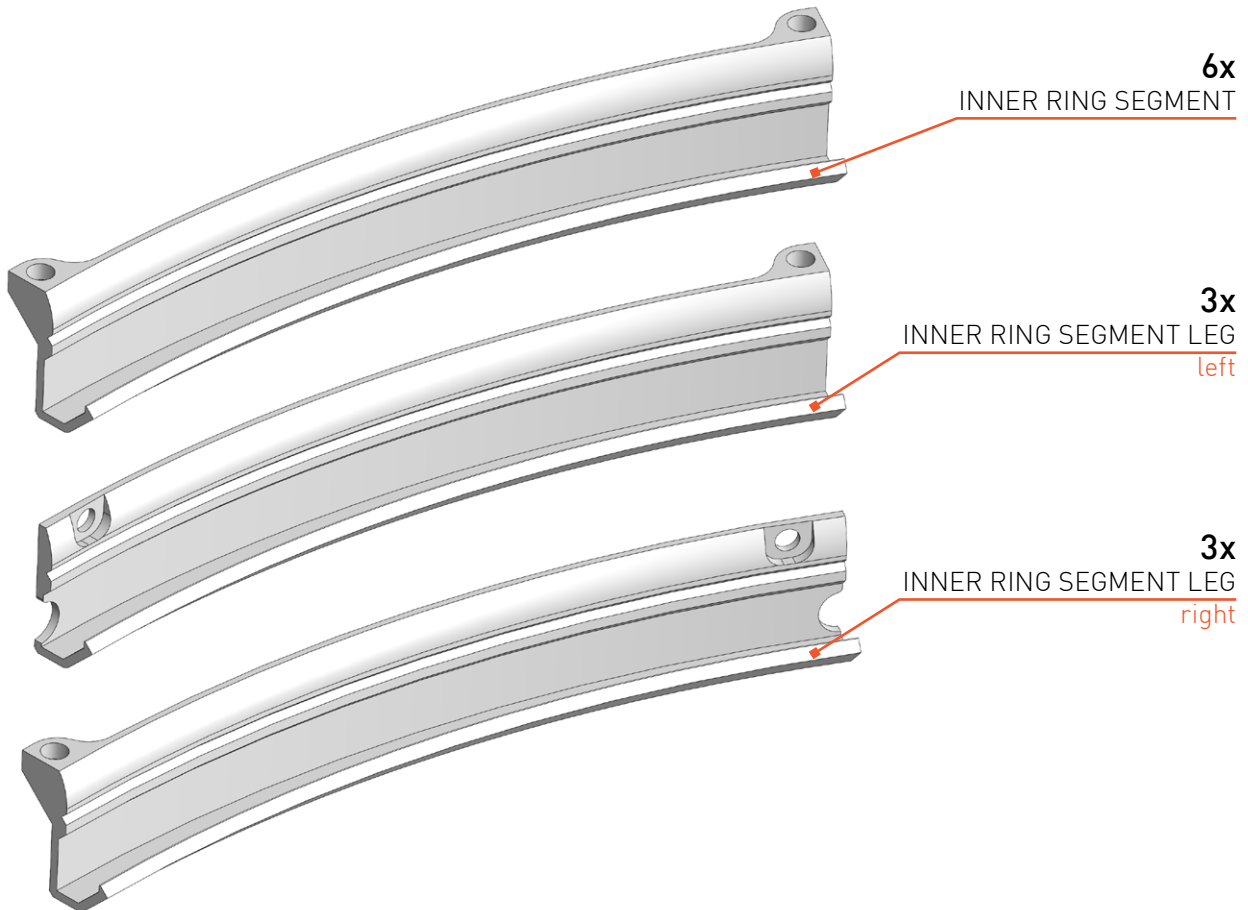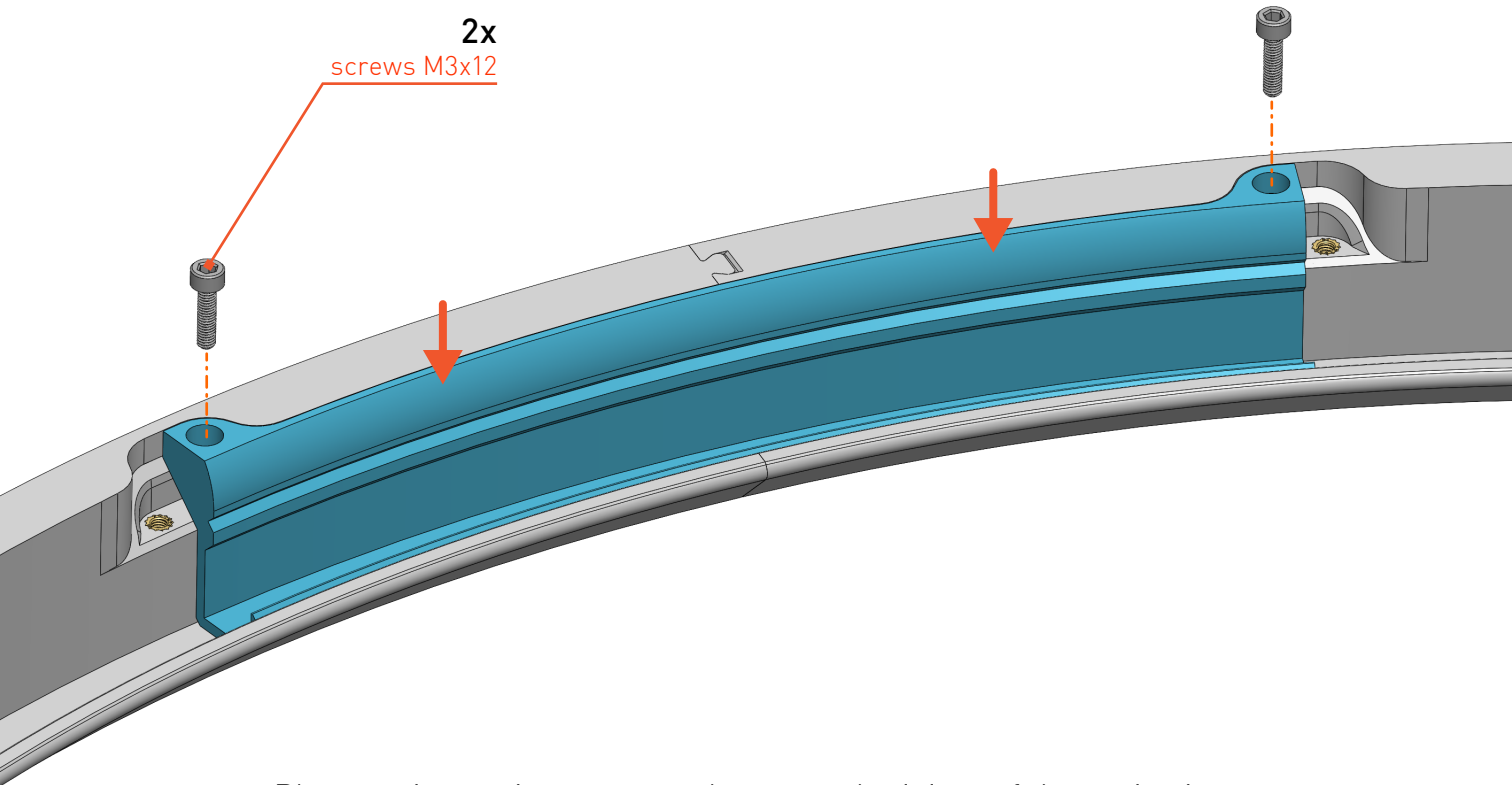
Place an inner ring segment between the joints of the main ring.

Secure them with screws M3x12.

At the positions where the camera legs are mounted,
use the inner rings segments with a holes:

2x
screws M3x12

INNER RING SEGMENT LEG
left

INNER RING SEGMENT LEG
right

LED connector
$d_{max}=\varnothing 12mm$

❸

❷

❶
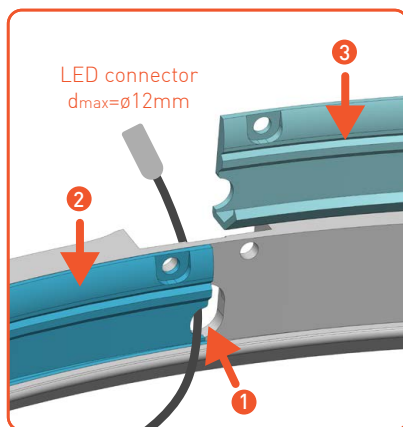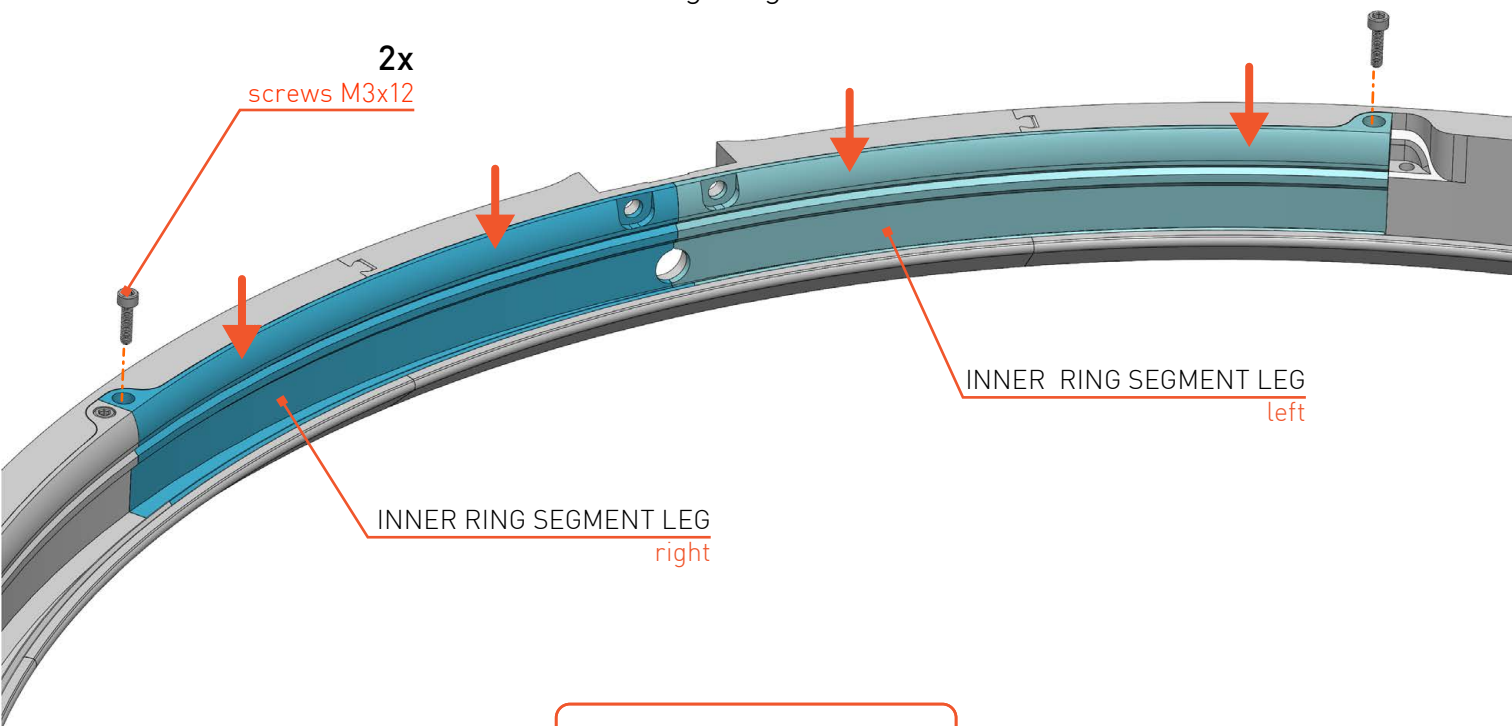
Tip: If your LED strip is with a soldered connector $(d_{max}=\varnothing 12mm)$, you must first thread the connector
through the inside of the ring before inserting the inner leg ring segments.

LED LIGHT

LED STRIP
POWER SUPPLY
CABLE
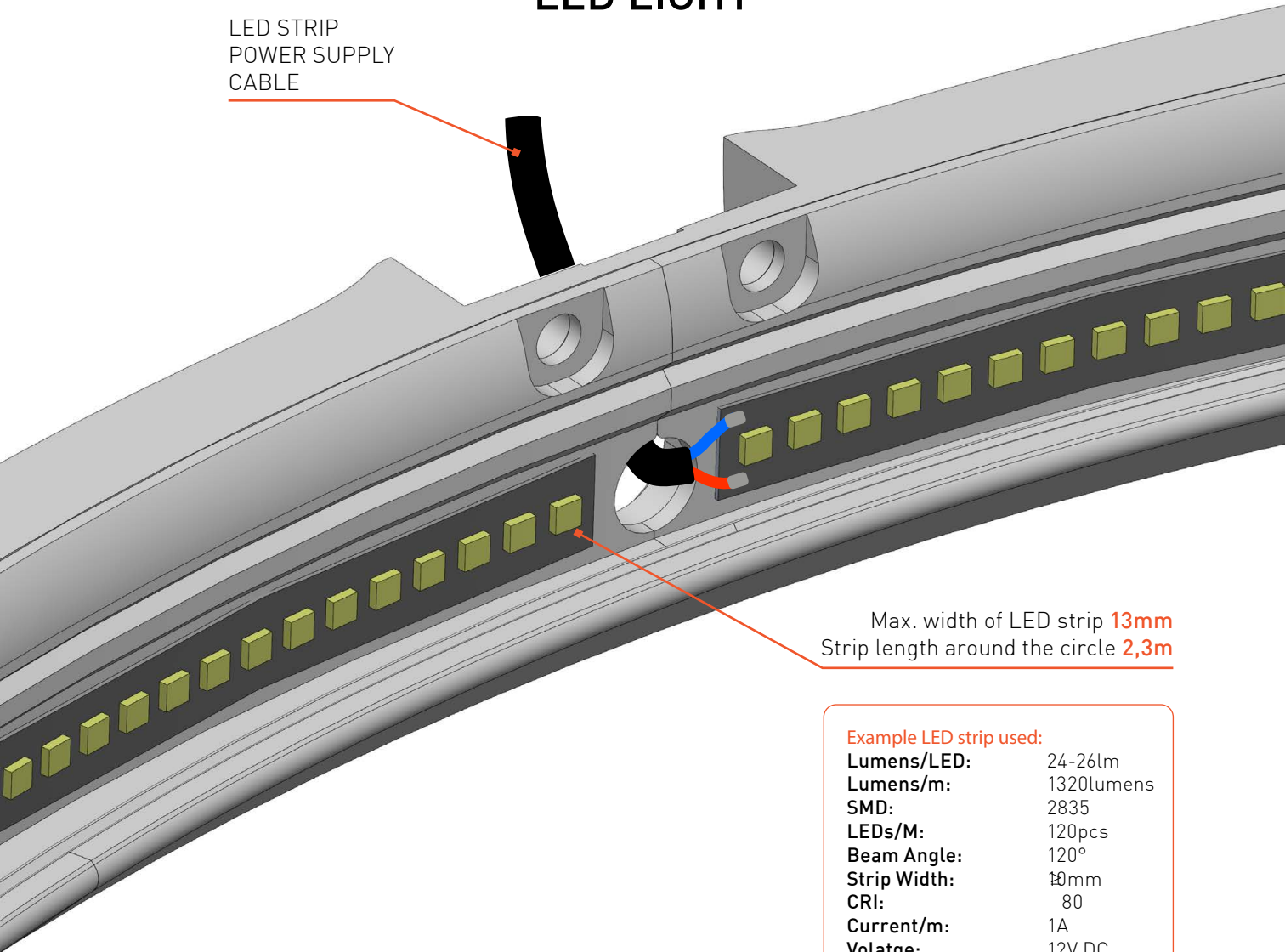
Max. width of LED strip **13mm**
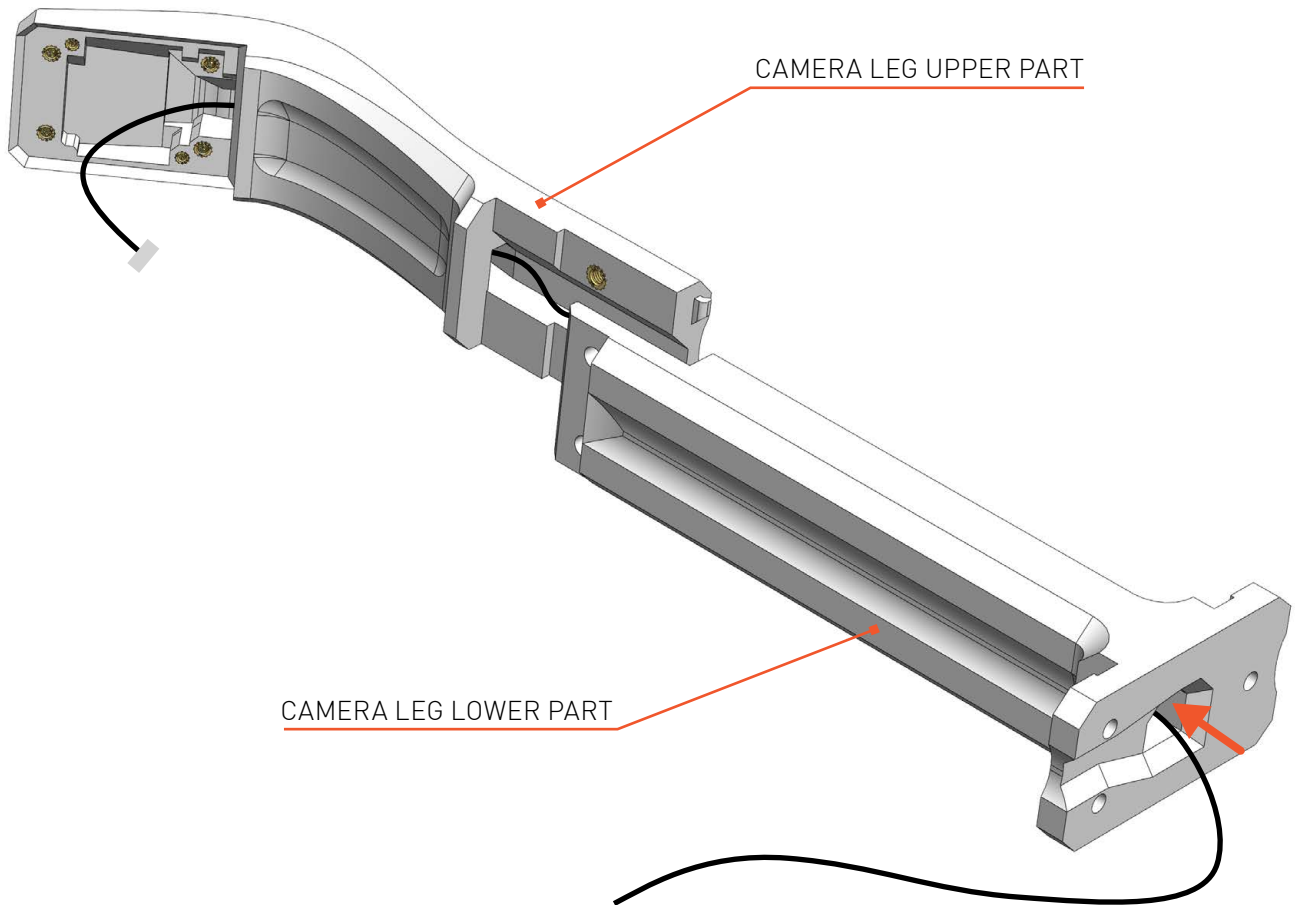Strip length around the circle **2,3m**

Example LED strip used:

Lumens/LED:	24-26lm
Lumens/m:	1320lumens
SMD:	2835
LEDs/M:	120pcs
Beam Angle:	120°
Strip Width:	10mm
CRI:	80
Current/m:	1A
Volatge:	12V DC
Protection:	IP20
Color Temp.:	Day White (4000K)

CAMERA LEG ASSEMBLY
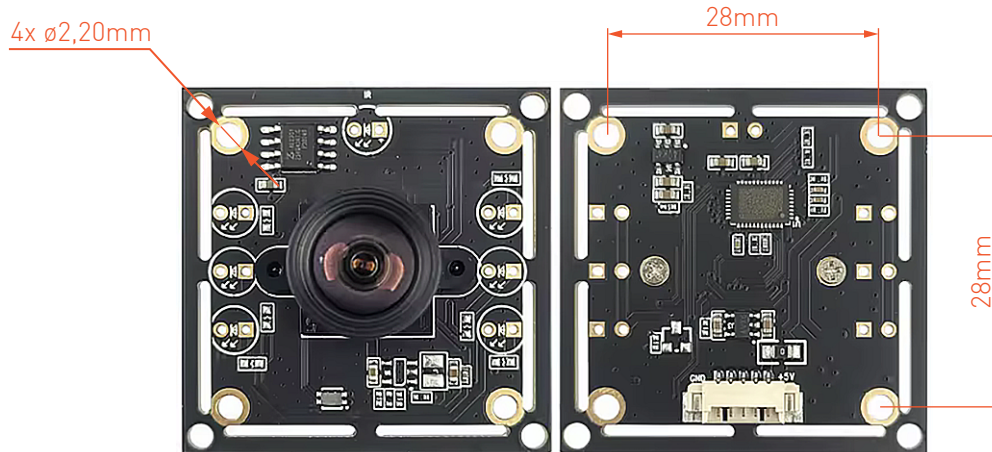
Using a soldering iron, carefully heat and press in the following
Ruthex threaded inserts into the camera leg upper part.

2x
Ruthex RX-M2x4

4x
Ruthex RX-M3x5.7

2x
Ruthex RX-M4x8.1

CAMERA LEG UPPER PART
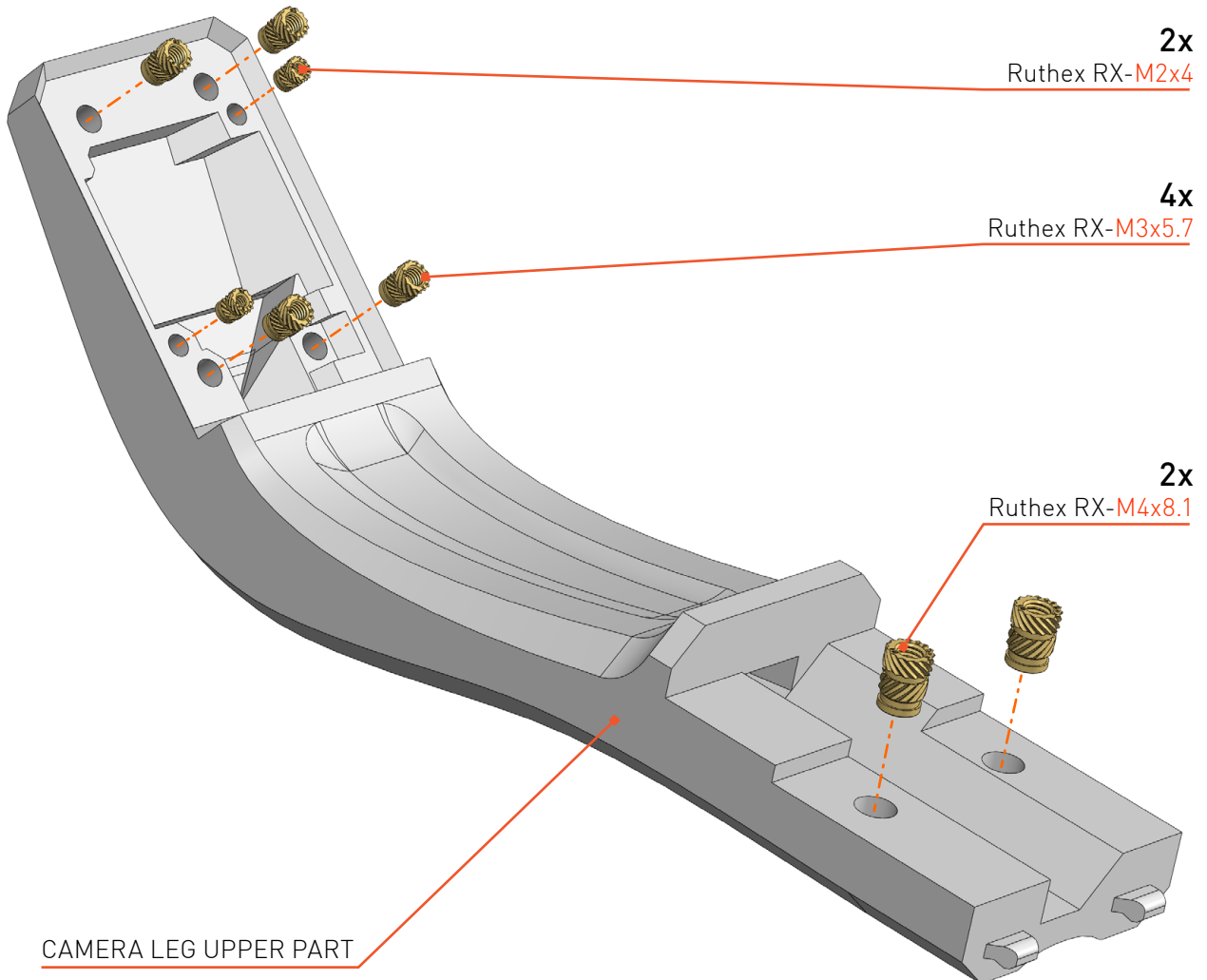
Insert the USB camera cable through both leg parts.

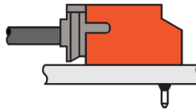CAMERA LEG UPPER PART

CAMERA LEG LOWER PART

Compatible USB camera

4x ø2,20mm

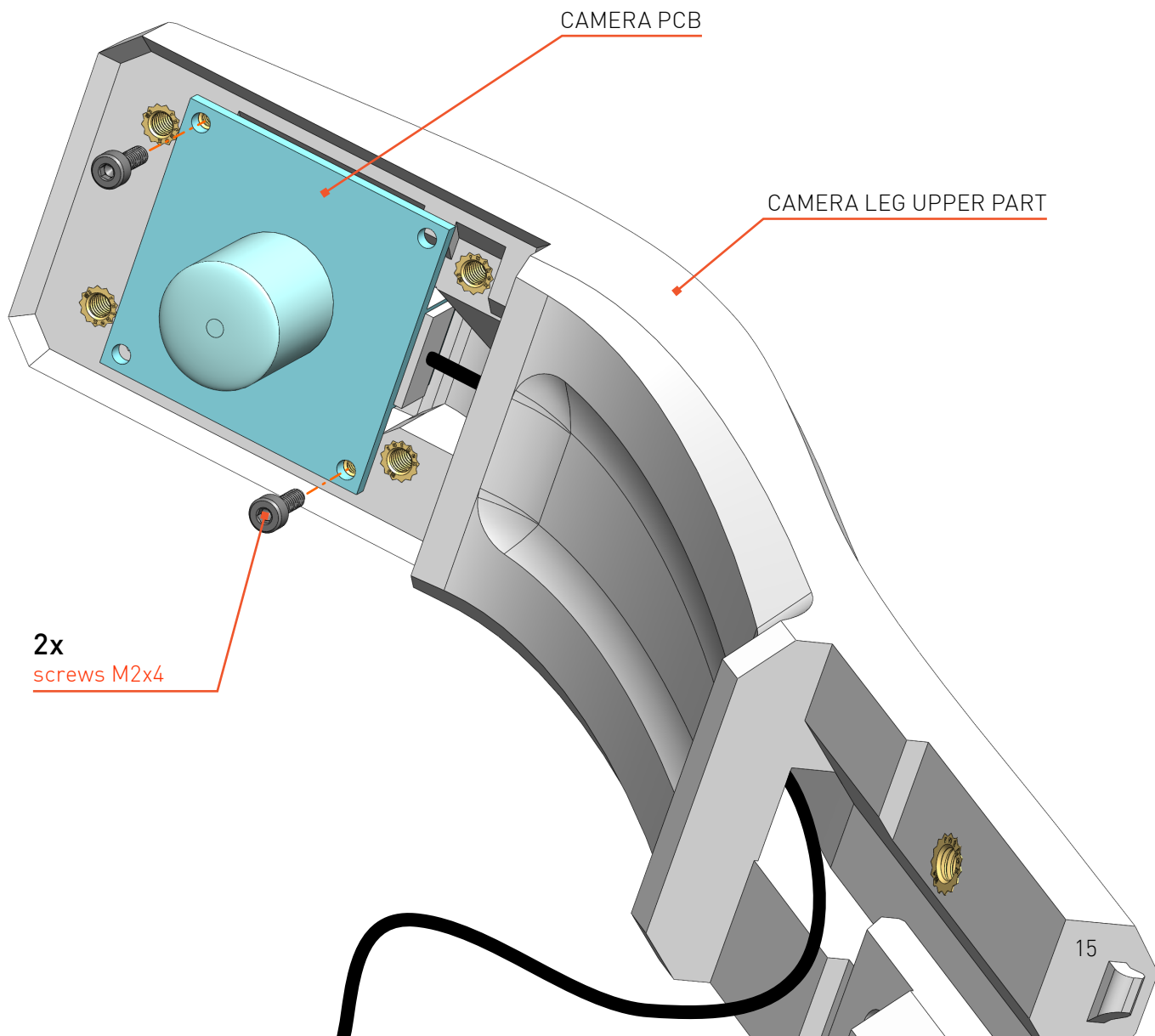28mm

28mm

USB OV9732 100 Degree Camera Module 1MP

Tip: For better cable management during the assembly
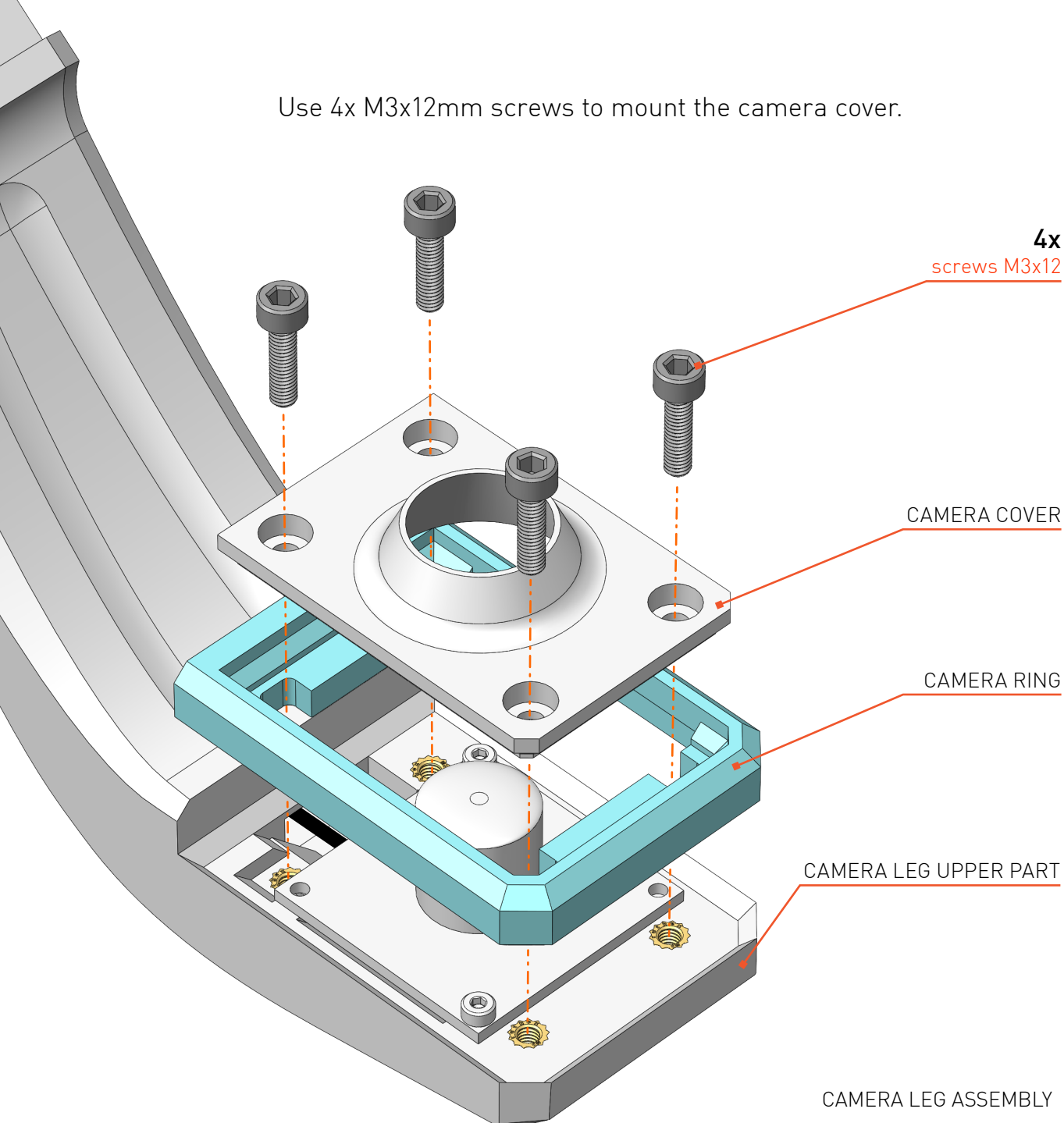is recomended to have slide PH connector on camera PCB

Info: Printed model is also compatible with top entry PH connector type.

Connect the USB cable to camera PCB and secure them with 2x M2x4mm.

CAMERA PCB

CAMERA LEG UPPER PART

2x
screws M2x4

Use 4x M3x12mm screws to mount the camera cover.

4x
screws M3x12

CAMERA COVER

CAMERA RING

CAMERA LEG UPPER PART
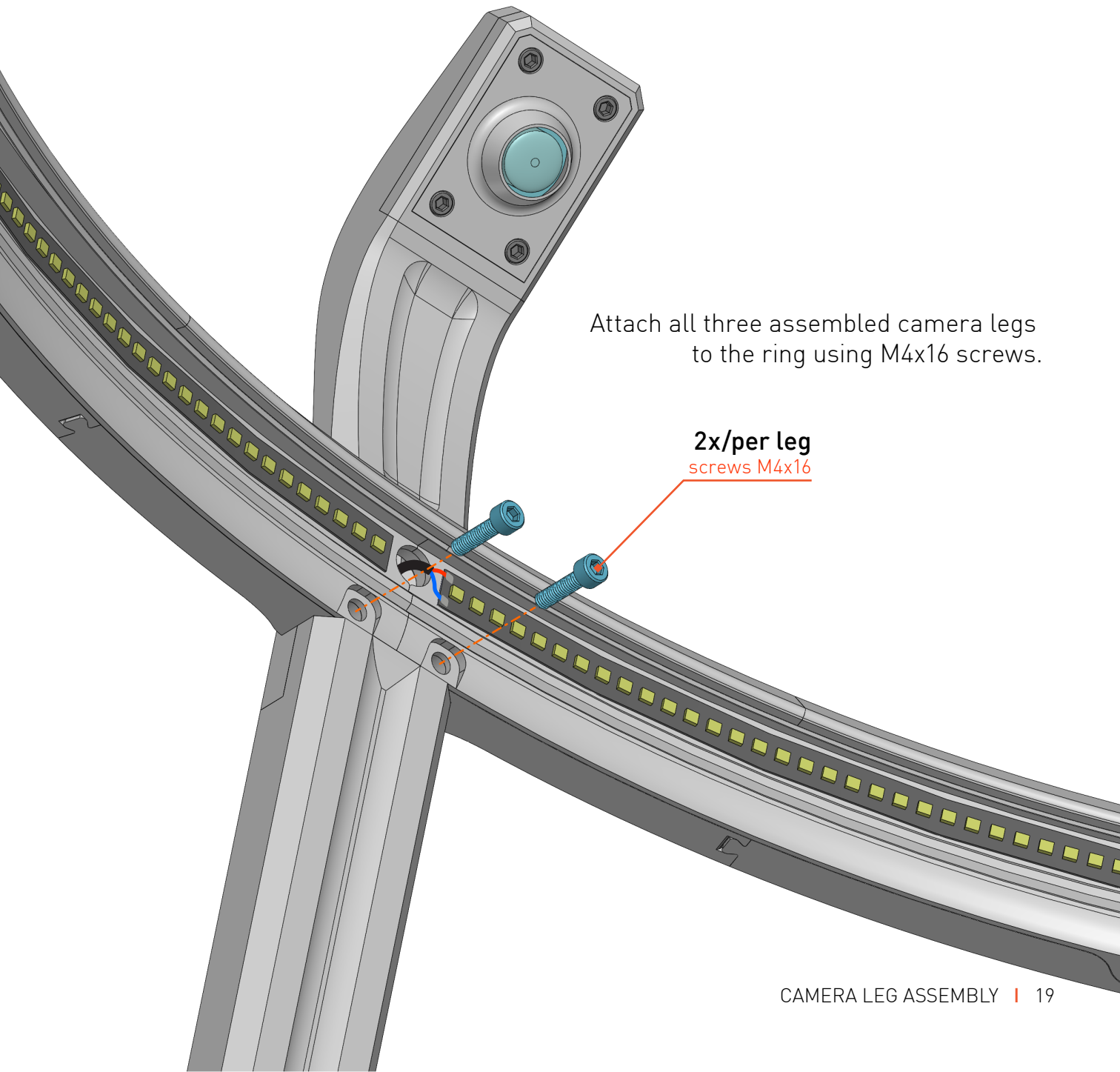
CAMERA LEG UPPER PART

Insert the two clips on the upper leg
into the lower leg

CAMERA LEG LOWER PART

CAMERA
USB CABLE

LED STRIP
POWER SUPPLY
CABLE

Section view of the camera leg and ring,
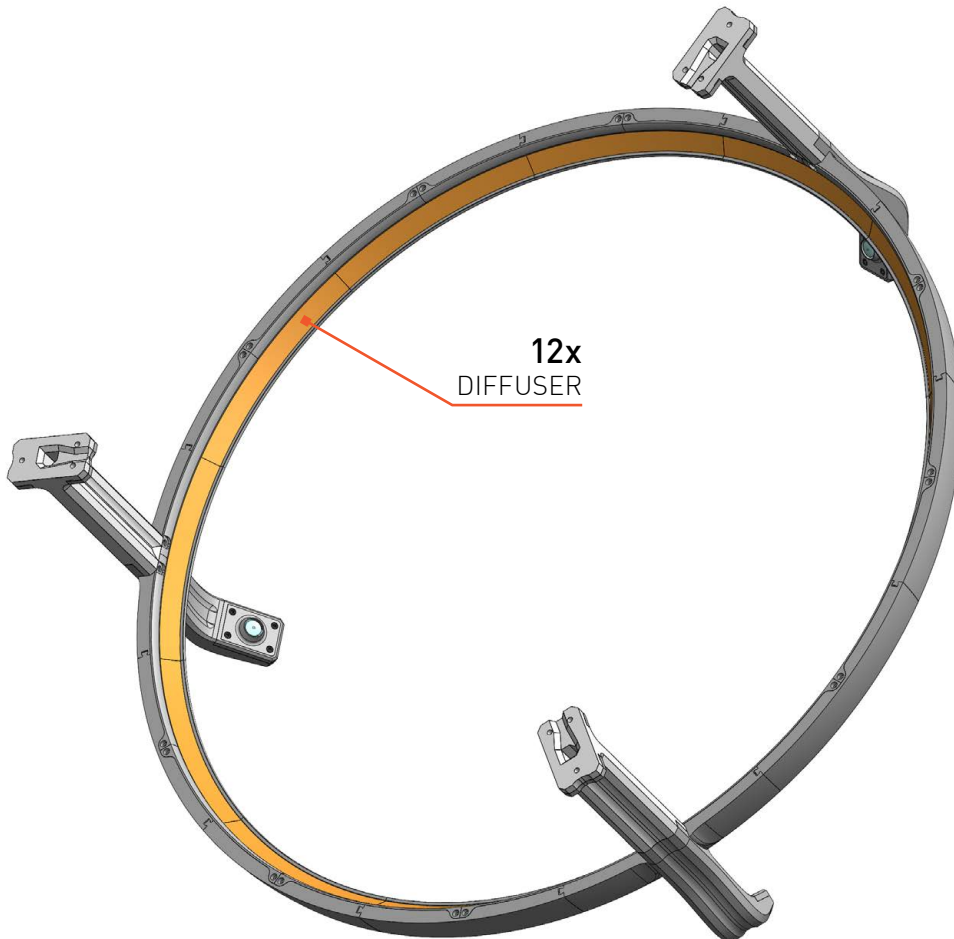showing the internal cable routing.

Attach all three assembled camera legs
to the ring using M4x16 screws.

2x/per leg
screws M4x16

LED DIFFUSER

After assembling the entire ring and installing the LED strip,
you can cover the lighting with a diffuser.

12x
DIFFUSER

The material should be transparent (ideal is PETG)
so that the light is not significantly dimmed.

We created a two-colour model, because during design and testing
we found that light could travel through the diffuser to the edge,
which may be distracting for some 9-darters 😃.
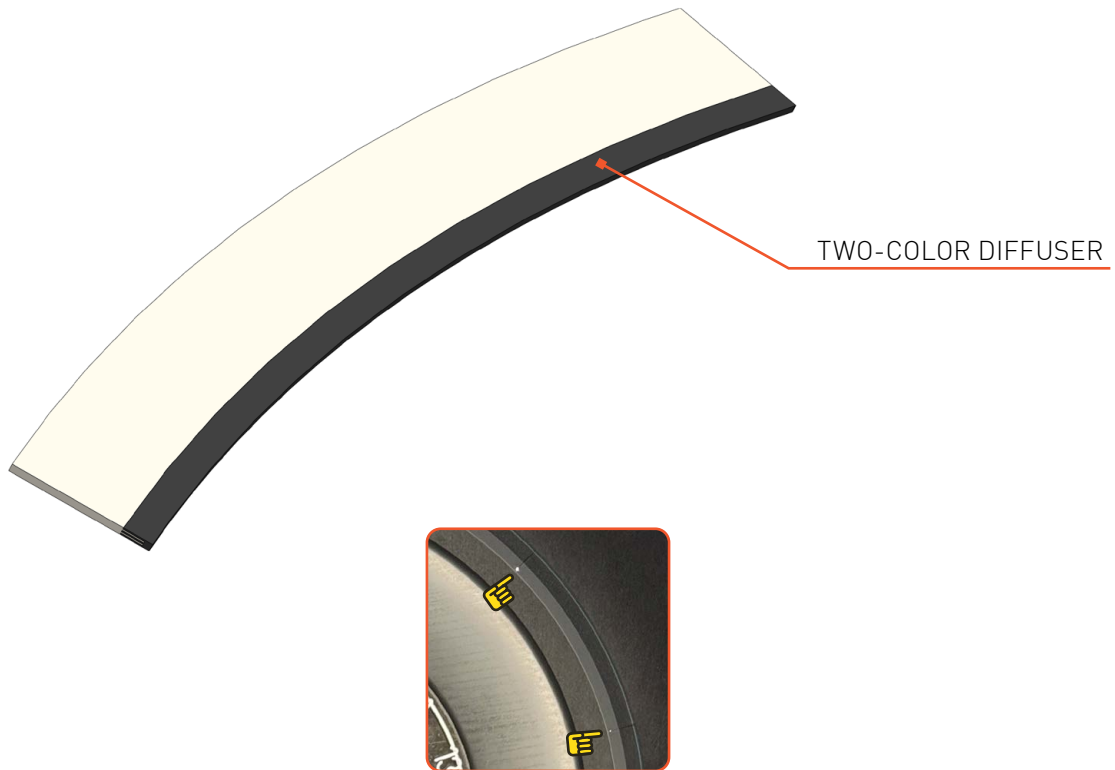
TWO-COLOR DIFFUSER

Important: If you print the diffuser only in one color, the light will travel through it to the edge,
and you will see the joints of the segments. We recommend to print the diffuser in two-color.
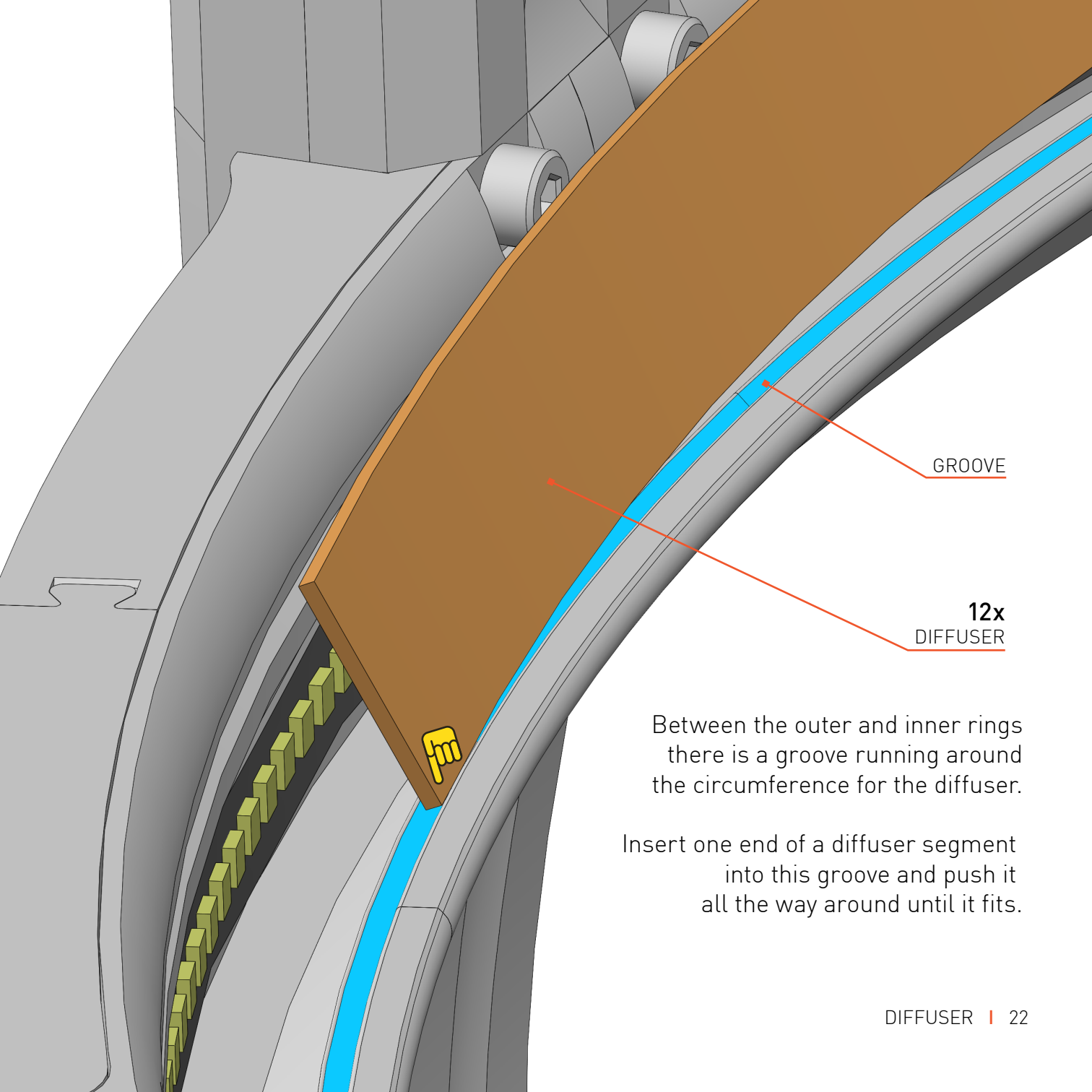
GROOVE

12x
DIFFUSER

Between the outer and inner rings
there is a groove running around
the circumference for the diffuser.

Insert one end of a diffuser segment
into this groove and push it
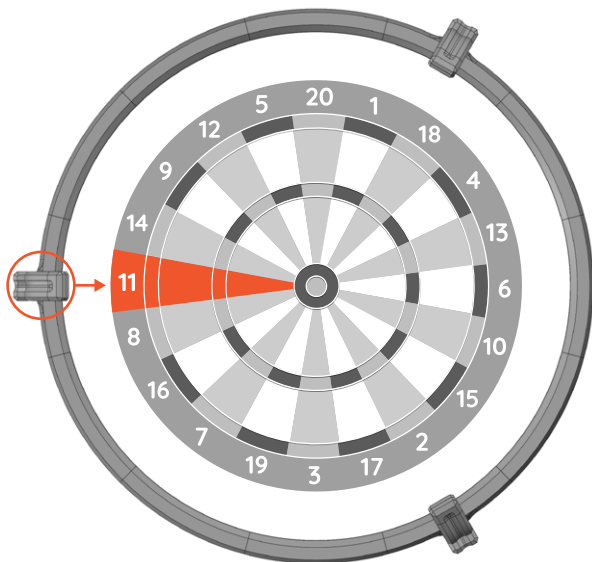all the way around until it fits.

Push the diffuser around the inner edge with your fingers.
You should hear a soft "click".

Once inserted, the diffuser not only covers the LED strip
but also strengthens the entire ring.
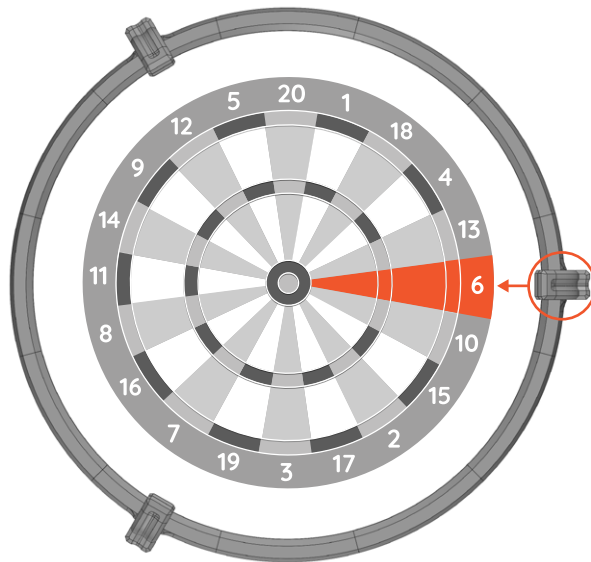The complete diffuser consists of 12 parts.
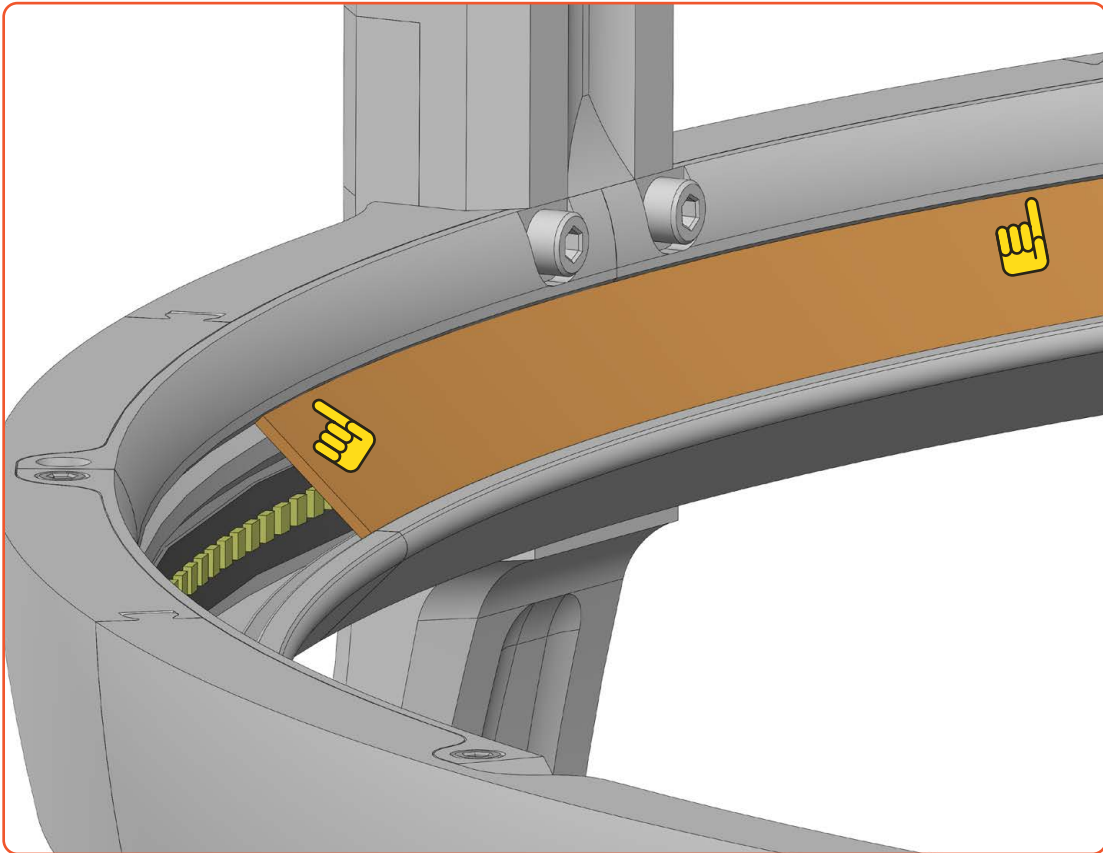
AUTODARTS CAMERA POSITIONING

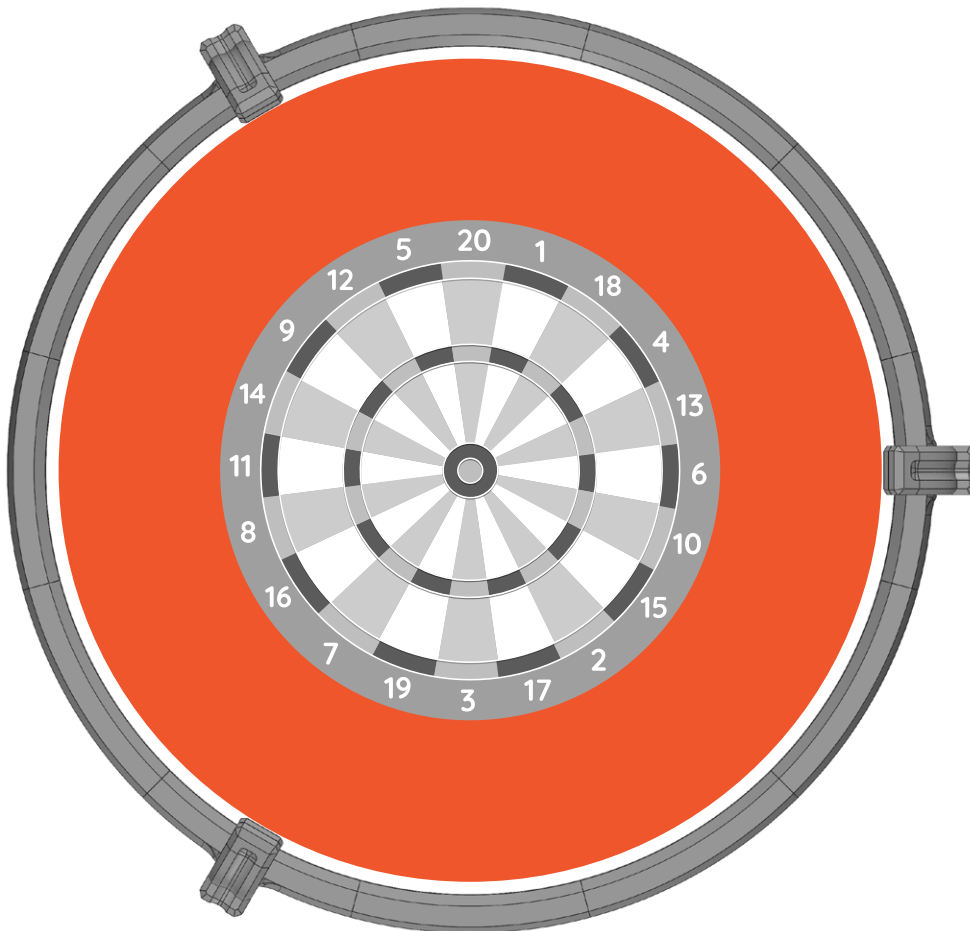You have two options where must be placed cameras around the dartboard.

Camera positioning tip no. 1
Camera alligned with dartboard segment 11

Camera positioning tip no. 2
Camera alligned with dartboard segment 6

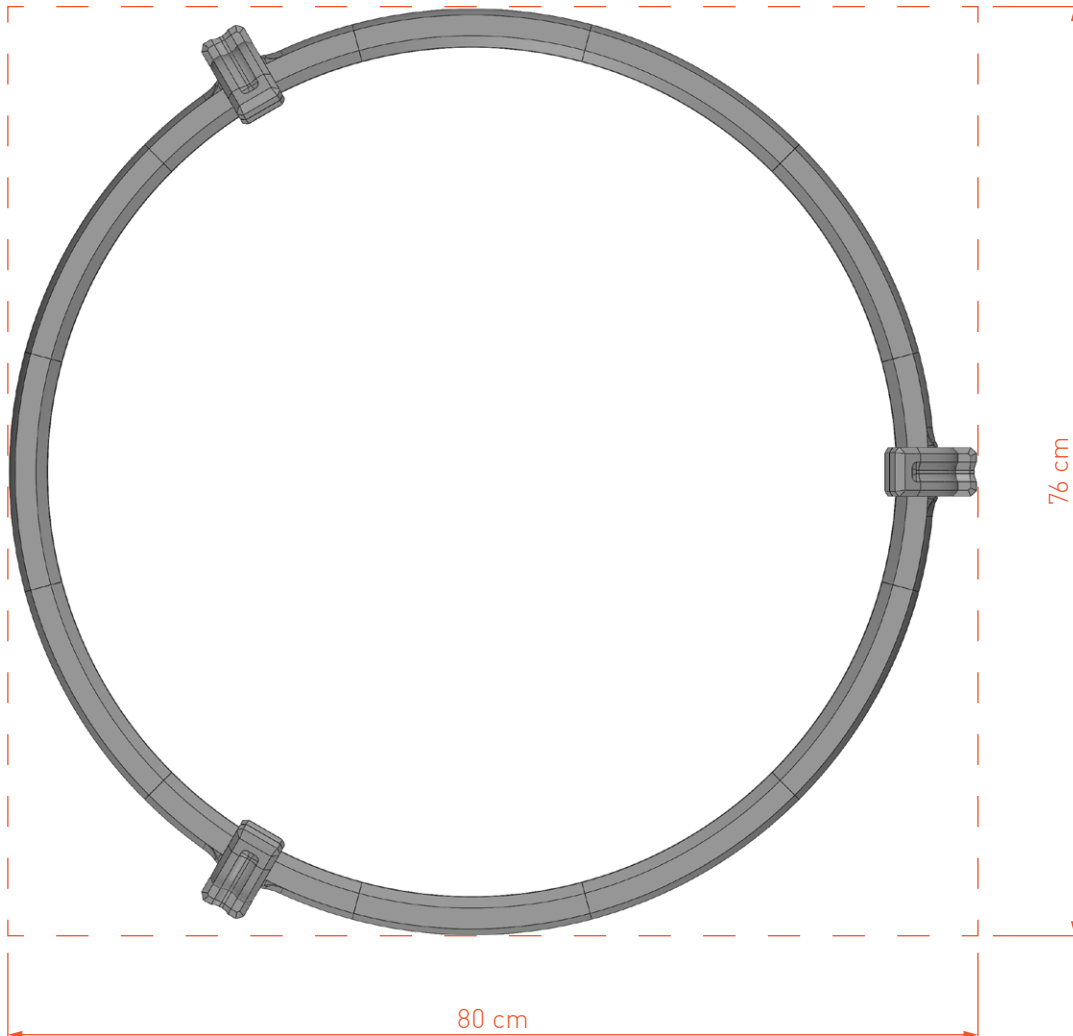# DARTBOARD SURROUND
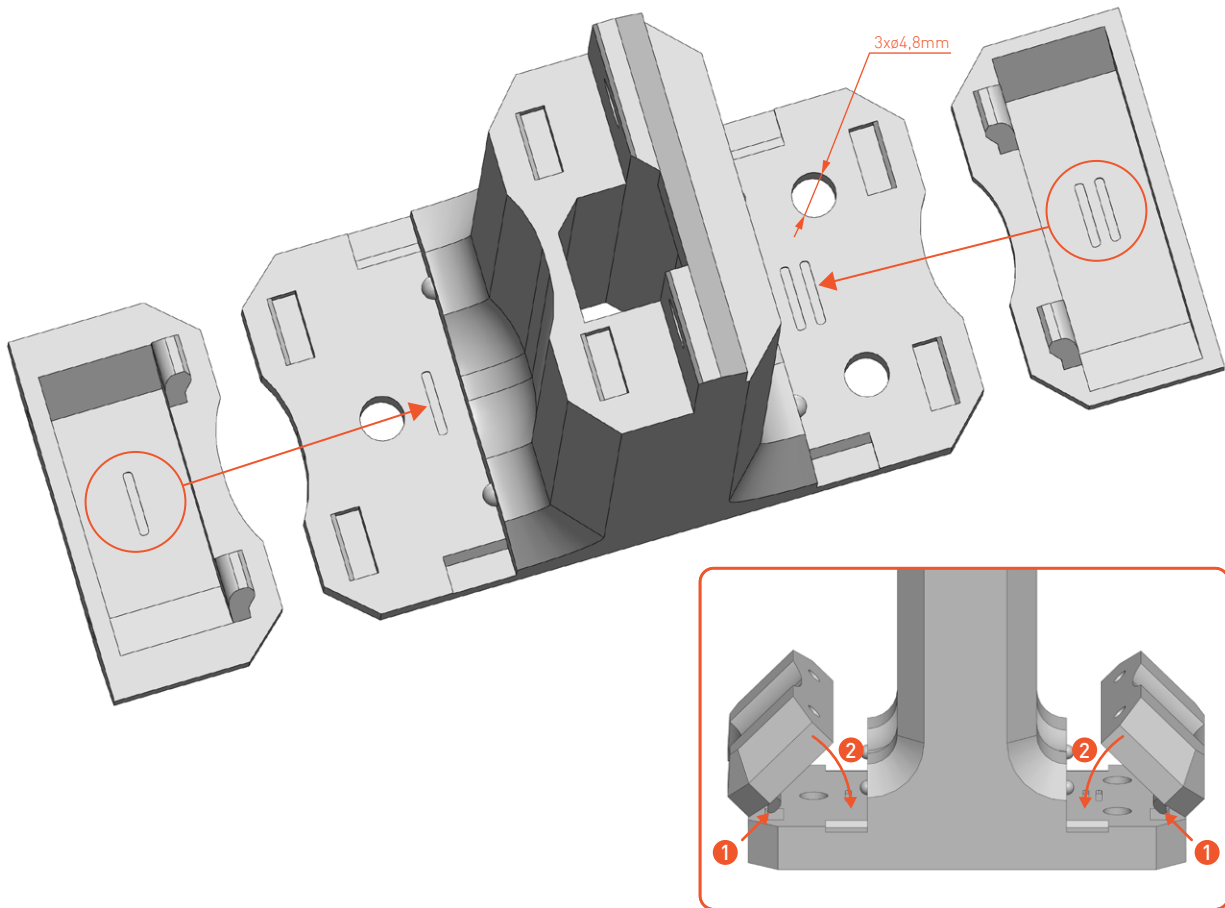
Maximum outer diameter of the surround: 67,5cm.

MINIMUM BASE BOARD SIZE

Minimum size of the base board on which can you place a ring with legs: **80x76cm.**

76 cm

80 cm

SCREW COVERS

Each leg includes two caps to cover the mounting screws.
Pay attention to the markings **I** and **II** on the caps and the legs.

3xø4,8mm

Insert the small pins on the cap into the corresponding holes in the leg and press it in.
If you need to remove the cap, use a screwdriver in the small opening on the side of the leg.

Important: We recommend using screws with a half-round head, thread diameter size $\varnothing_{max}$=4.5mm.
If the screw heads are too large, the caps may not snap on properly.

LIST OF COMPONENTS

Ruthex RX M2x4			6 pcs
Ruthex RX M3x5,7			30 pcs
Ruthex RX M4x8,1			6 pcs
Screw M2x4			6 pcs
Screw M3x12			30 pcs
Screw M4x16			6 pcs

THANK YOU

For supporting us!