INSTALLATION MANUAL

# STEEL ROOF GUTTER SYSTEMS INGURI

INGURI

THE POWER OF ROOFS

BP2.EU

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**!** **THIS MANUAL IS ILLUSTRATIVE AND DOES NOT RELEASE CONTRACTORS FROM THE OBLIGATION TO FOLLOW THE RULES OF THE ROOFING PRACTICE.**

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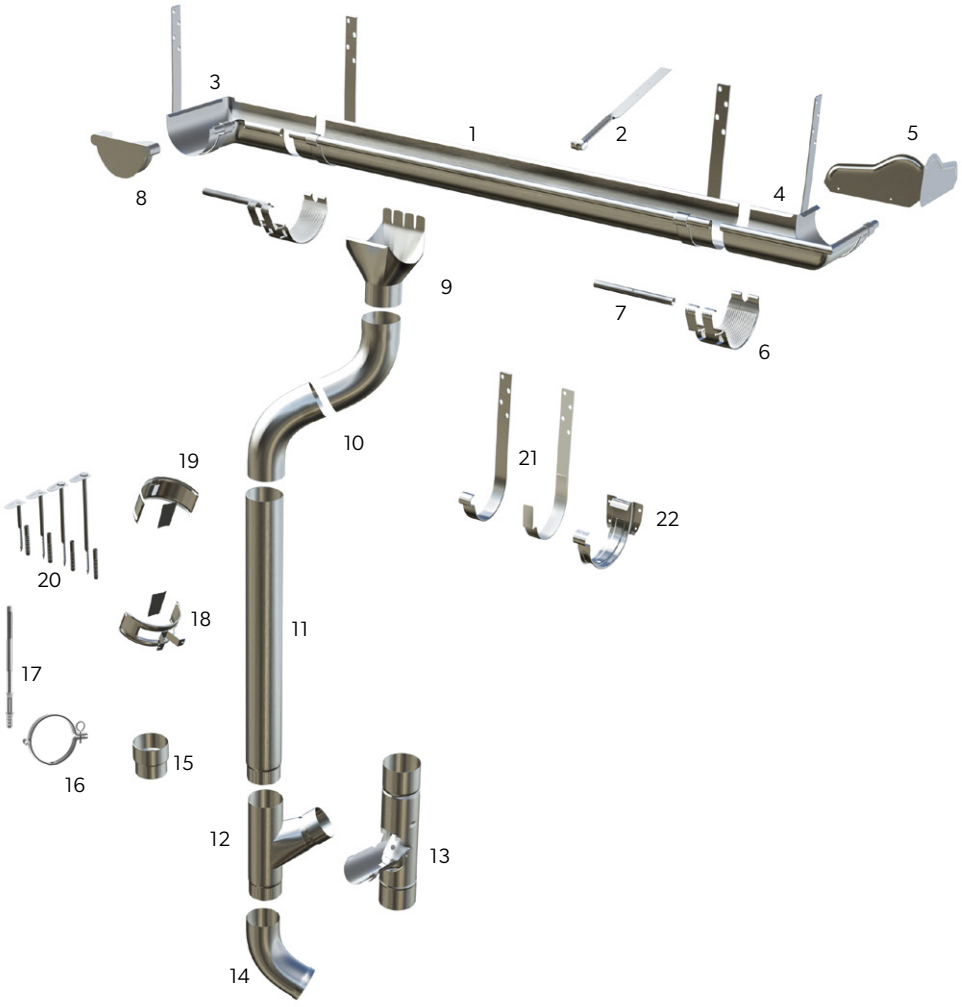
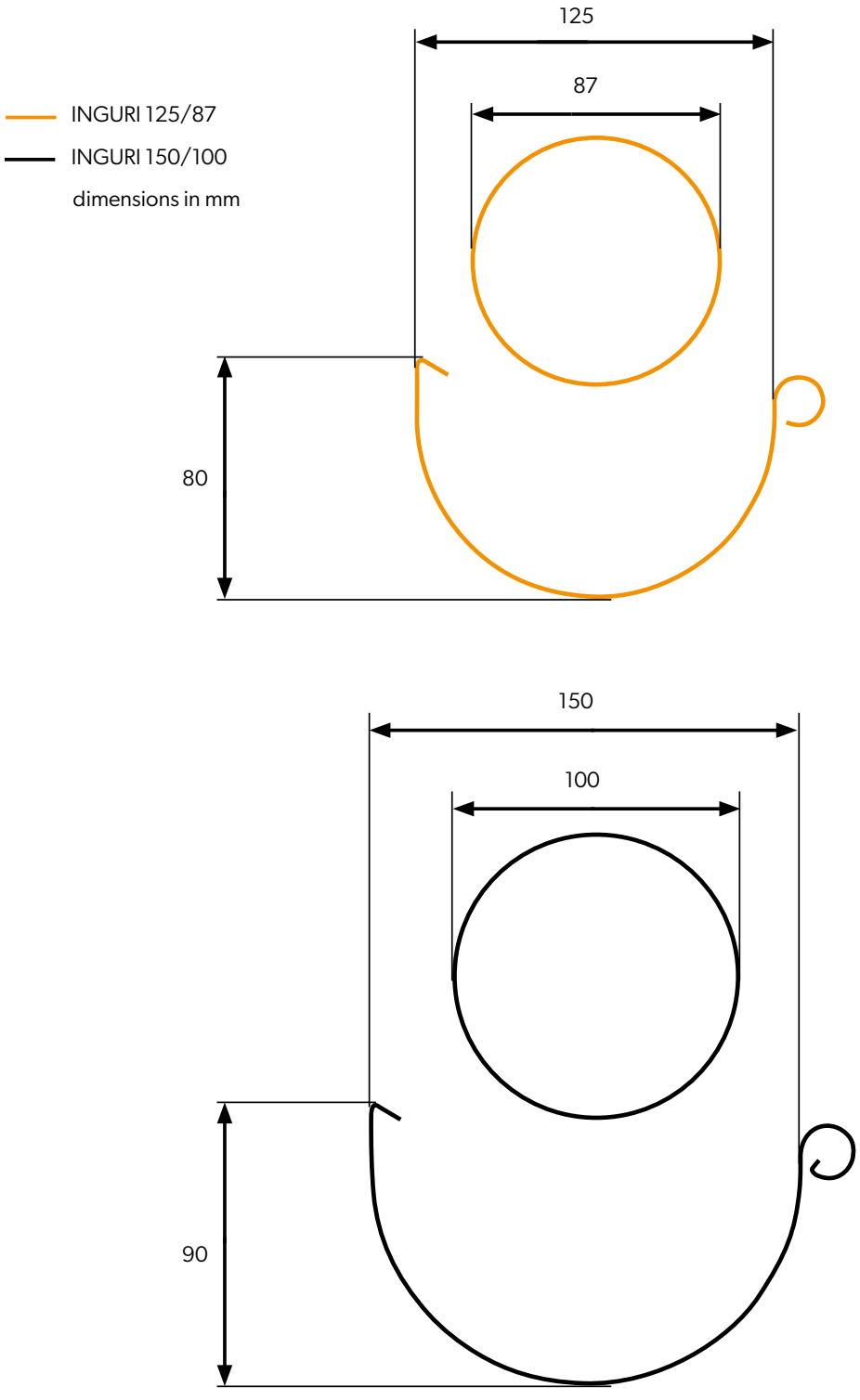


## 2. Technical specification of INGURI gutter systems

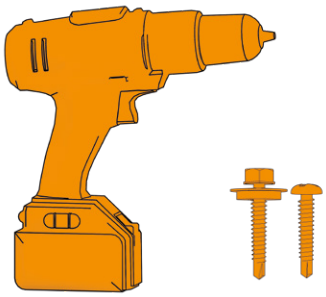
**INGURI** 125/87 and150/100 are complete gutter systems made from two-side coated steel of highest quality. All the systems' elements are designed in a way that assures easy alignment and quick installation. The shape and depth of gutters assure effective water discharge, even during intense and long rainfalls.



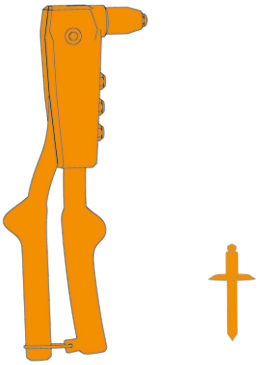
## 3. Recommended tools and accessories

Before starting the assembly, you should equip yourself with the accessories shown in the pictures on the right.

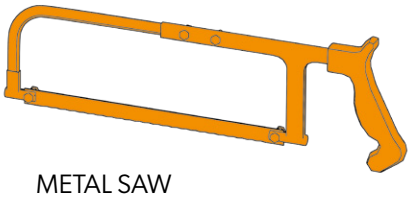
# FIG.1 RECOMMENDED TOOLS AND ACCESSORIES



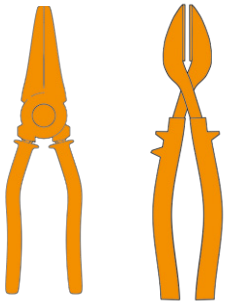
POWER SCREWDRIVER, SCREWS



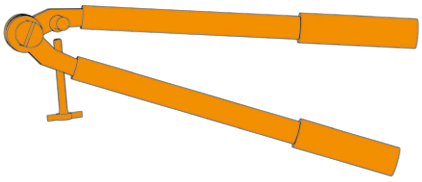
RIVETER, RIVETS



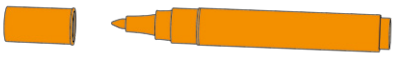
METAL SAW



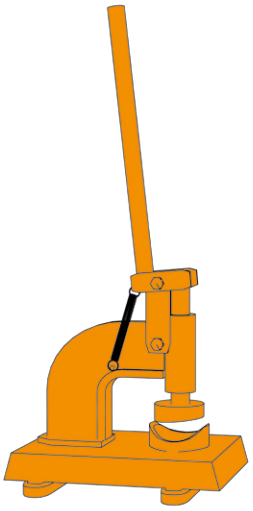
PLIERS, METAL SHEARS



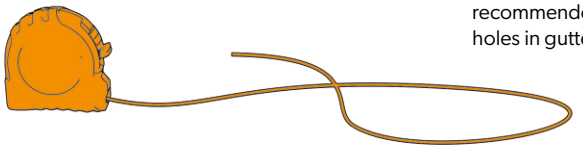
RAFTER HOOK BENDING MACHINE



MARKER



HOLE SAW
recommended for making drainage holes in gutters



TRACKER CORD

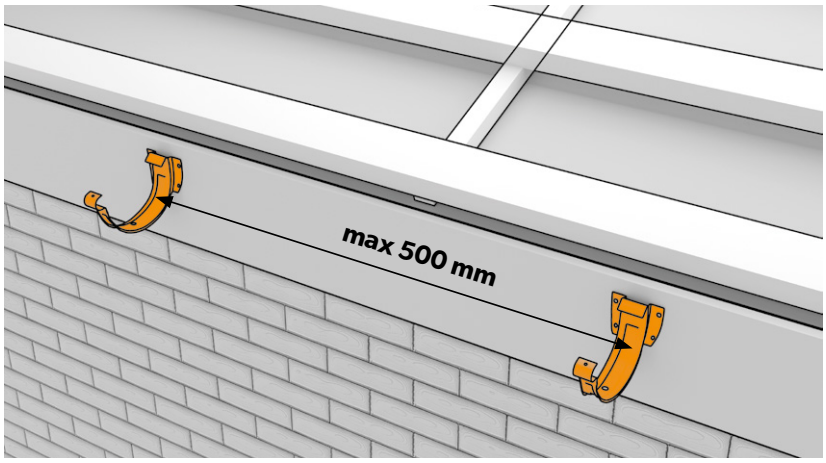
LEVEL

SLIP SPRAY

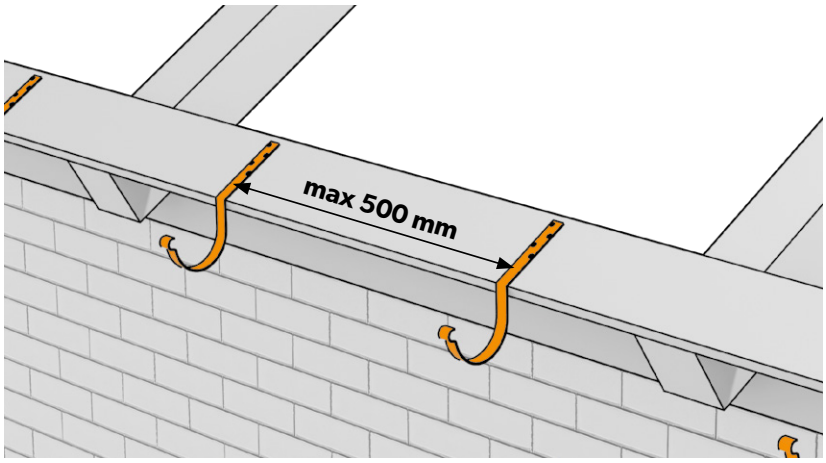
## 4. Gutter hooks installation

The rafter and butt gutter hooks should be installed at distances not exceeding 500 mm.

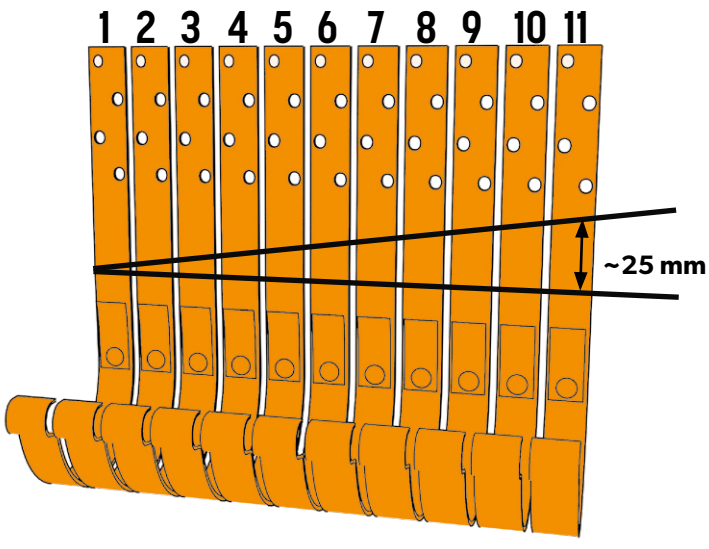
## FIG.2 SPACING OF GUTTER HOOKS




When installing the gutter hooks, the gutter slope towards the downspouts should be provided. This is important to ensure the patency of the gutter system, which, if the recommended slope is not followed, may be disturbed by fallen leaves or other dirt. The minimum recommended slope is 3-5 mm per 1 running meter of the gutter. In order to ensure a proper slope of the gutter, the gutter hooks should be bent to the rafter at the height designated for each hook. To determine the place of bend of individual hooks, first calculate their number for a given plane, then arrange them next to each other, mark a straight line at the height of the bend of the first hook, and a second straight line extending from the first hook, so that the distance between the lines after the last hook is the decrease to be obtained on a given section. It is this line that will define the places of hook bending (this method is illustrated in **Fig. 3**).



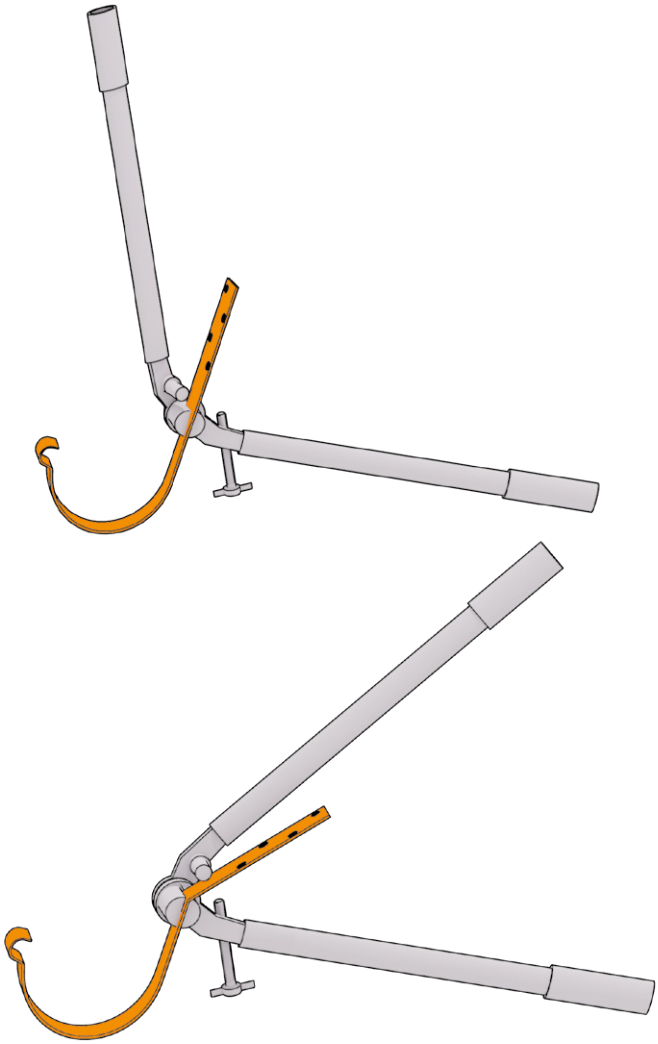

## FIG.3 DETERMINATION OF HOOKS BENDING PLACES




**ASSEMBLY TIP**

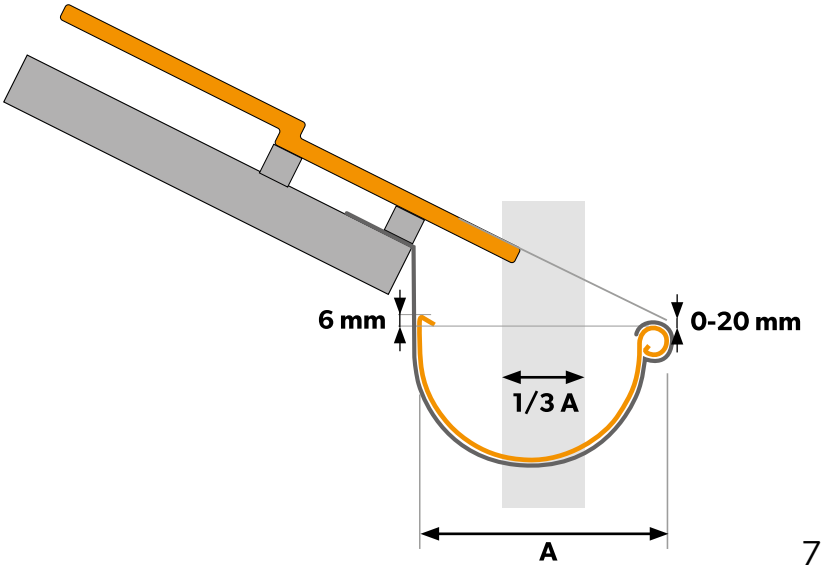
**Hooks should be numbered to avoid mistakes in the order of their assembly.**

## FIG.4 BEND OF RAFTER HOOKS



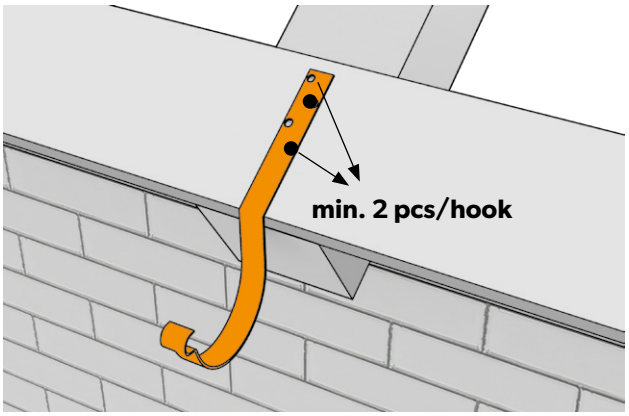
To bend the hooks properly, it is recommended to use a hook bender (**Fig. 4**). When bending them, take into account that the leading edge of the gutter should be 6 mm lower than the rear edge. The correct position of the gutter is shown in **Fig. 5**.

## FIG.5 CORRECT POSITION OF THE GUTTER



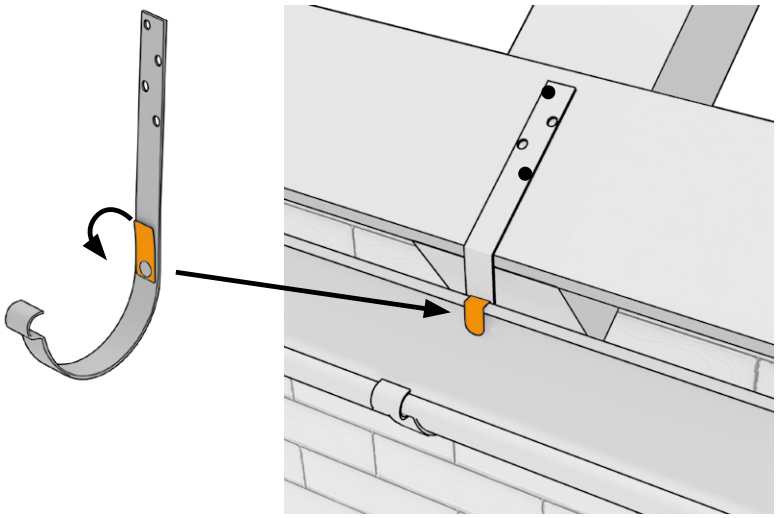
## FIG.6 FASTENING RAFTER HOOKS

The hooks should be attached to the front board or rafter with at least two screws each (**Fig. 6**).



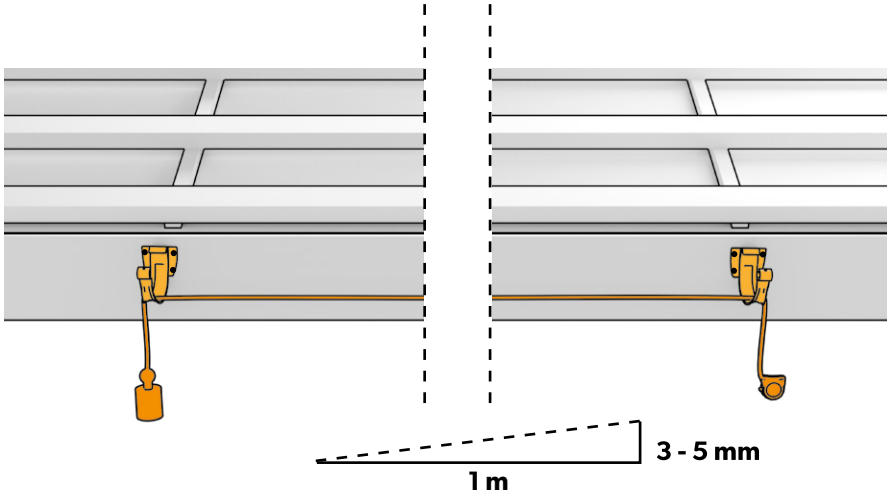

## FIG.7 SEATING THE GUTTER ON RAFTER HOOKS

When placing the gutter on the rafter hooks, fasten it by bending the tab of the hook on its inner edge (**Fig. 7**). The gutter on the butt hooks is snapped into place.



## FIG.8 DETERMINATION OF HOOKS ASSEMBLY POINTS USING A TRACKER LINE

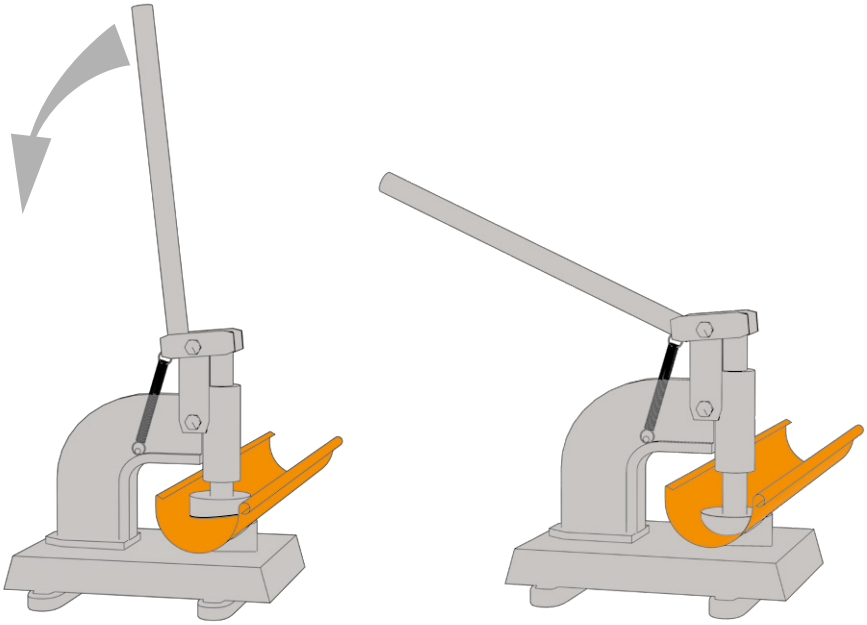
An alternative method is to fix the first and last hook on a given slope at the heights of which the difference is the drop to be achieved over this distance and the string is pulled between them. Remember to load the string properly on both sides. It will then designate a straight line along which subsequent hooks will be attached (**Fig. 8**).



## 5. Seating the gutter on the gutter outlet

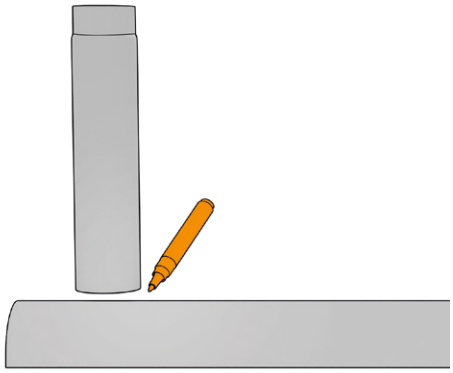
The activity that must be performed with special care is to prepare an opening in the gutter in the place where it will be seated on the gutter outlet.
The manufacturer offers a dedicated hole saw (**Fig. 9**), which greatly simplifies the execution of drain holes. A properly profiled knife allows you to cut a hole with the correct radius in one move, which does not require any further processing.

### FIG.9 TING OUT A DRAIN HOLE IN THE GUTTER USING A HOLE SAW

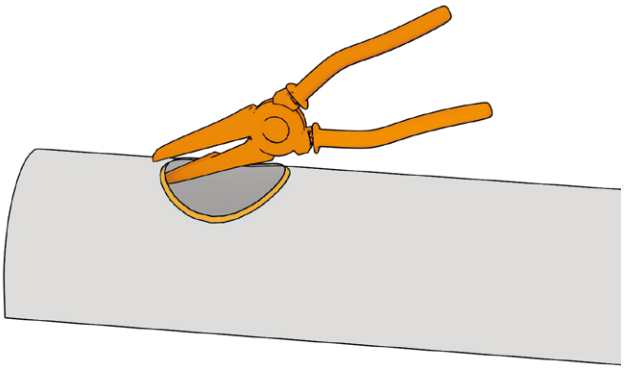


An alternative method is to cut a hole with a hacksaw. After determining the place where the gutter outlet is to be located, mark the size of the hole with a felt-tip pen and outline the downpipe (**Fig. 10**). Then cut the outlet opening in the gutter. It is recommended to cut the hole with a hacksaw and finish it with nibbler shears. The edges of the opening should be bent outwards (**Fig. 11**).

### FIG.10 OUTLINE OF THE DRAIN PIPE TO DETERMINE THE SIZE OF THE OUTLET HOLE

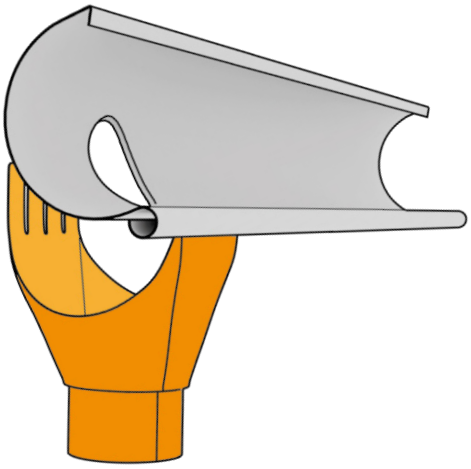


### FIG.11 BENDING OF THE EDGES OF THE HOLE



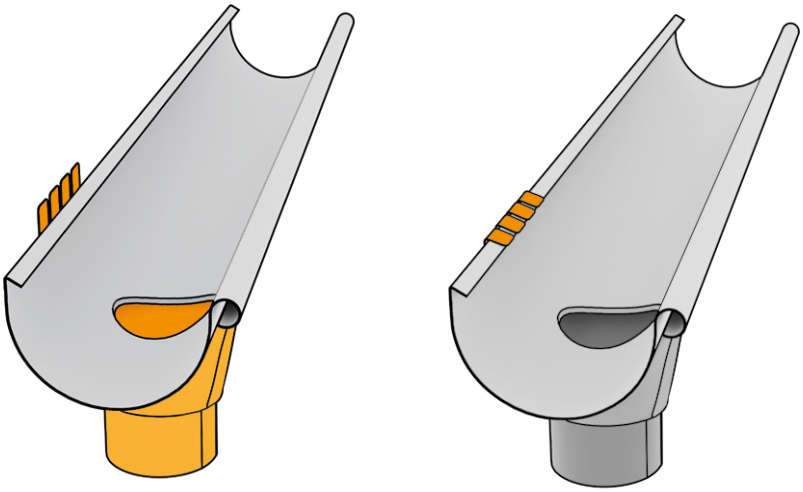
**Note! It is unacceptable to use an angle grinder and other devices causing a thermal effect (sudden temperature increase) for cutting and any treatment of the gutters and other elements of the system - it may damage the organic and zinc coating and, as a result, start the corrosion process.**

## FIG.12 PLACING THE GUTTER ON THE DRAIN EDGE

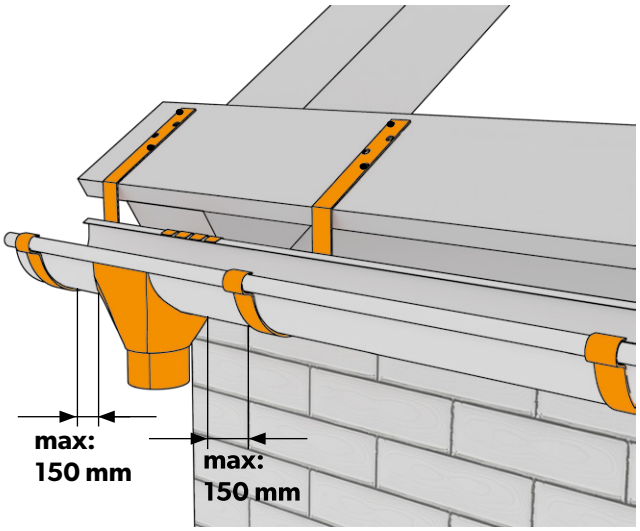


## FIG.13 SETTING AND FASTENING OF THE OUTLET GUTTER

When placing the gutter on the gutter outlet, its outer edge (in relation to the building wall) should be placed over the edge of the outlet (**Fig. 12**), then the gutter should be placed in the outlet and fastened by bending the outlet tabs on its inner edge (**Fig. 13**).



## FIG.14 SETTING THE GUTTER WITH THE DRAIN ON HOOKS




**Remember to place the gutter hooks close enough on both sides of the outlet. To ensure adequate strength, the distance between the outlet and the hooks should not exceed 150 mm (Fig. 14).**

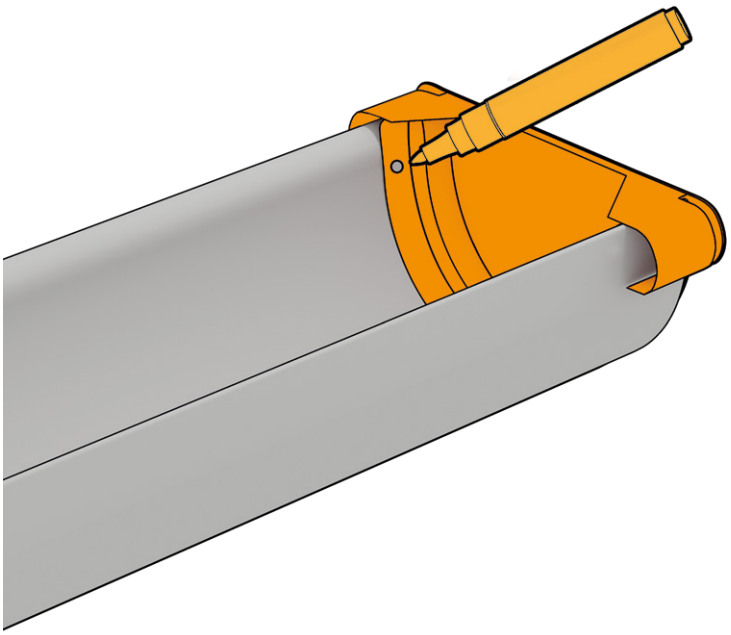
## 6. End cap installation

Before installing the gutter, it is necessary to determine at which end the end cap will be installed, then put the end cap and, based on the position of the original rivet holes in the end cap, determine the location of the holes in the gutter (**Fig. 15**) and drill them (**Fig. 16**).

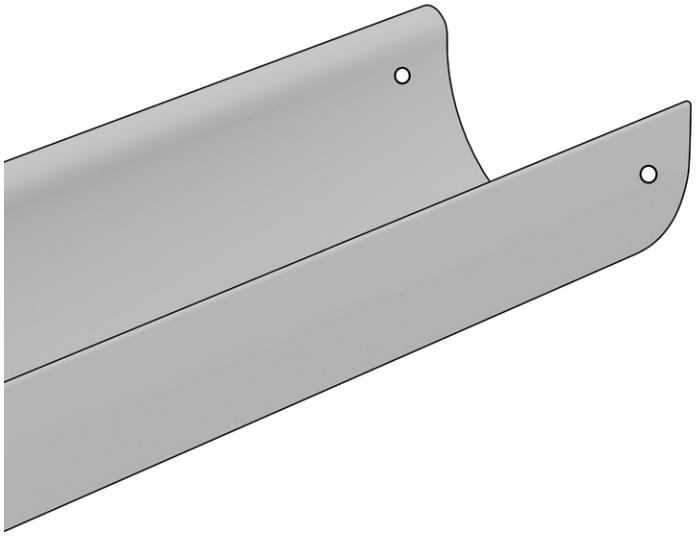
**Note! The final assembly of the end cap is carried out on the hooks already installed on the gutter.**

The gutter end cap is mounted at the end of the gutter mounted on hooks.
The **INGURI** system has a universal double-sided cap, therefore, after determining which "lug" the rolled up outer edge of the gutter enters. The other ear should be cut as shown in **Fig. 17**.

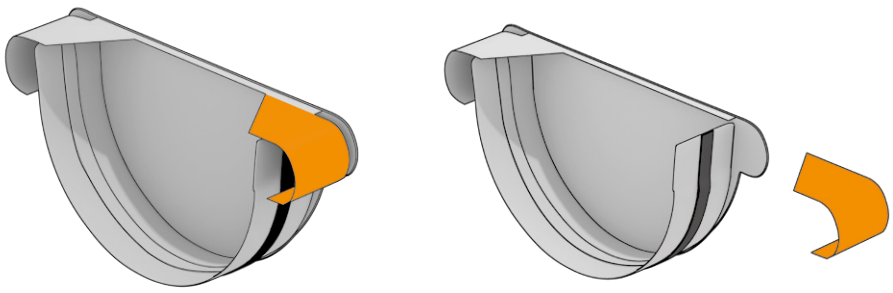
## FIG.15 MARKING OF HOLES FOR RIVETS



## FIG.16 PREPARATION OF HOLES FOR RIVETS

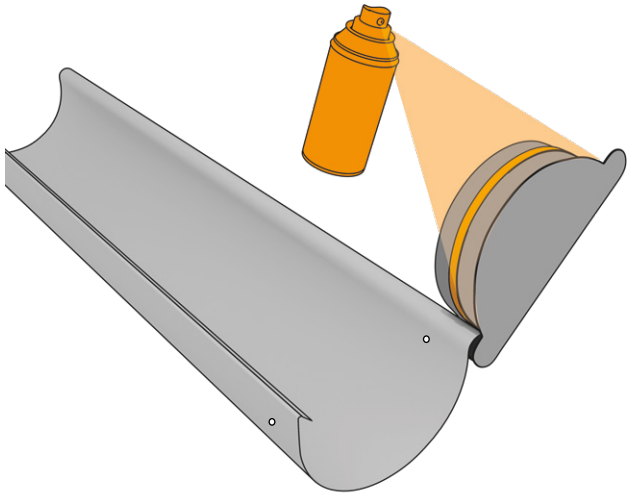


## FIG.17 CUTTING THE END CAP

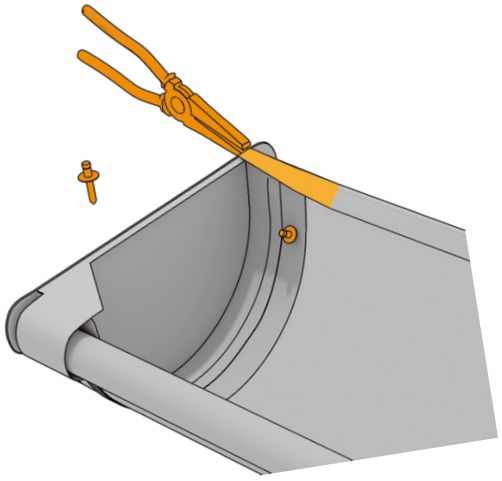


An important step is to apply the **INGURI** slip spray to the rubber element (seal) of the end cap (**Fig. 18**). Then, the end cap is put on the rolled up outer edge of the gutter and after determining the appropriate position it is set in the gutter. The rolling up of the gutter should be shaped with sheet metal pliers in such a way that it is seated on the edge of the end cap (**Fig. 19**), and the tab remaining after cutting the lug should be bent to the outer surface of the gutter, as shown in **Fig. 20**.

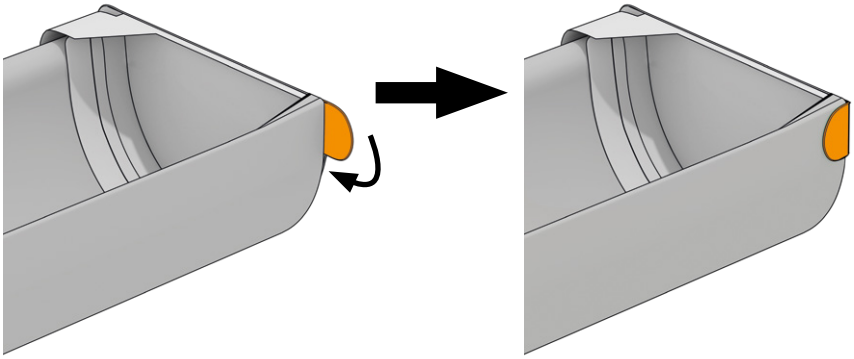
## FIG.18 APPLYING THE INGURI SLIP SPRAY ON THE SEAL OF THE END CAP AND PLACING THE END CAP ON THE ROLLED UP OUTER EDGE OF THE GUTTER



## FIG.19 SHAPING THE GUTTER FOLDING AND RIVETTING THE END CAP



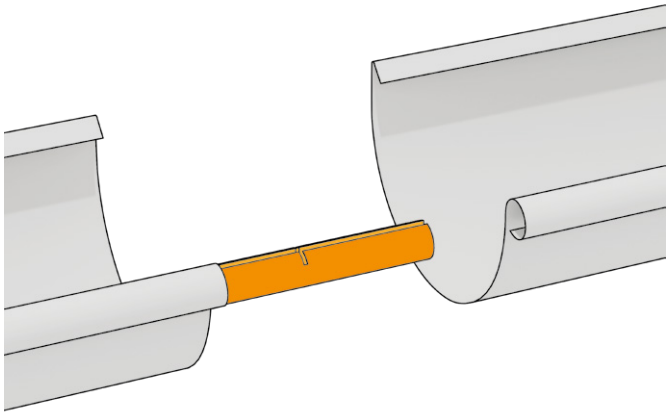
## FIG.20 BENDING THE TAB OF THE END CAP



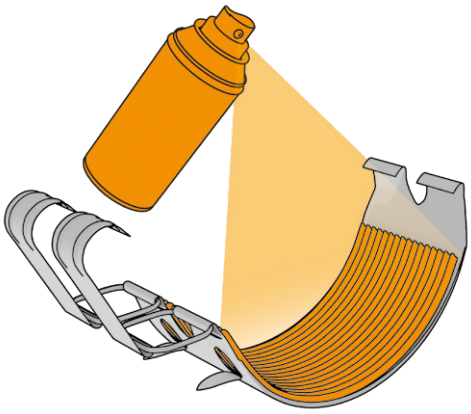
## 7. Connecting gutters

The **INGURI** gutter system provides a simple but very effective method of connecting two gutter sections or a gutter and a corner. The innovation of this method is based on the use of a connector stabilizer (**Fig. 21**). It is inserted into the rolled up outer edge of the gutter of the joined elements, ensuring the joint stiffness and very good adhesion.
The **INGURI** slip spray (**Fig. 22**) should be sprayed on the gutter connector seal, then set the connector to the required position and snap it.
You should also remember to place the hook at an appropriate distance from the planned connection (150 mm from the edge of the connector - **Fig. 23**).
For better sealing of the joint, it is advisable to apply two silicone rollers on the right and left side of the joint.

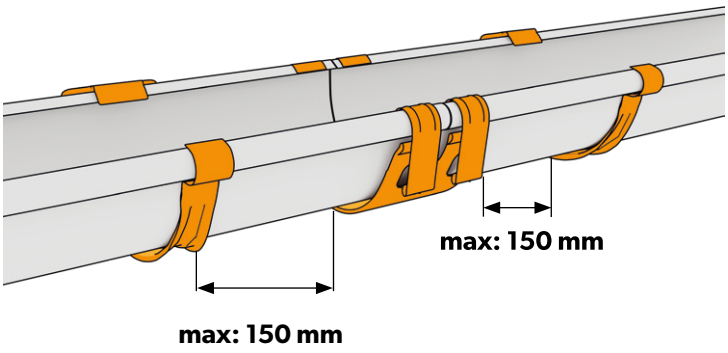
## FIG.21 APPLICATION OF THE CONNECTOR STABILIZER



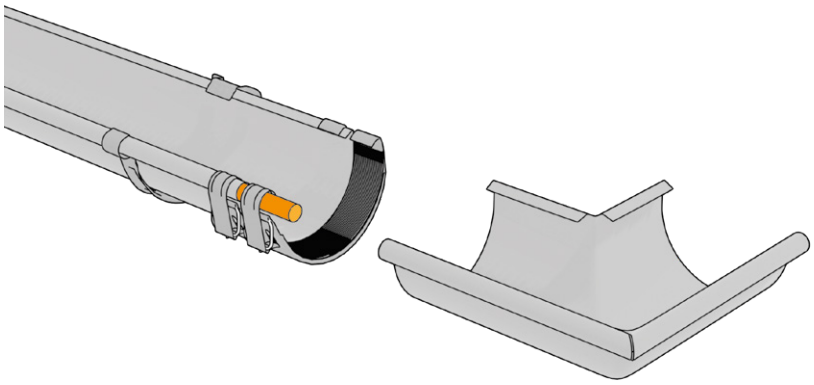
## FIG.22 APPLYING SLIP SPRAY ON THE SEAL OF THE GUTTER CONNECTOR



## FIG.23 JOINING THE GUTTERS



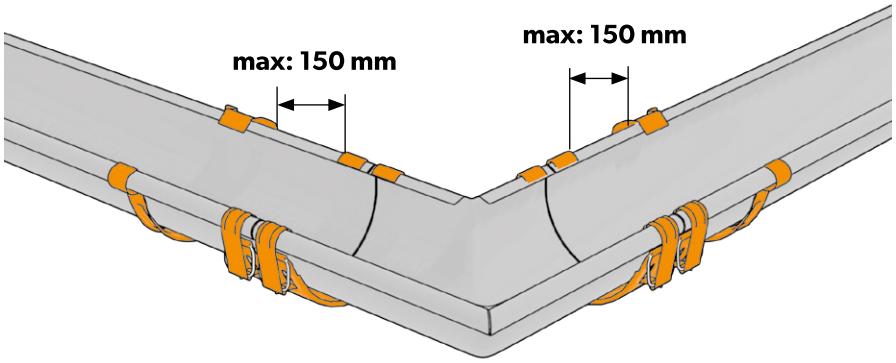
## FIG.24 JOINING THE GUTTER WITH THE CORNER



As in the case of connecting the gutters, when connecting the gutter with the corner, also use the stabilizer of the connector (**Fig. 24**), inserting it into the rolled up outer edges of the gutter of the joined elements.
The **INGURI** slip spray should be sprayed on the gutter connector seal.

You should also remember to place the hooks at an appropriate distance from the joint (150 mm from the edge of the connector - **Fig. 25**). For better sealing of the joint, it is advisable to apply two silicone rollers on the right and left side of the joint.

## FIG.25 JOINING THE GUTTER WITH THE CORNER

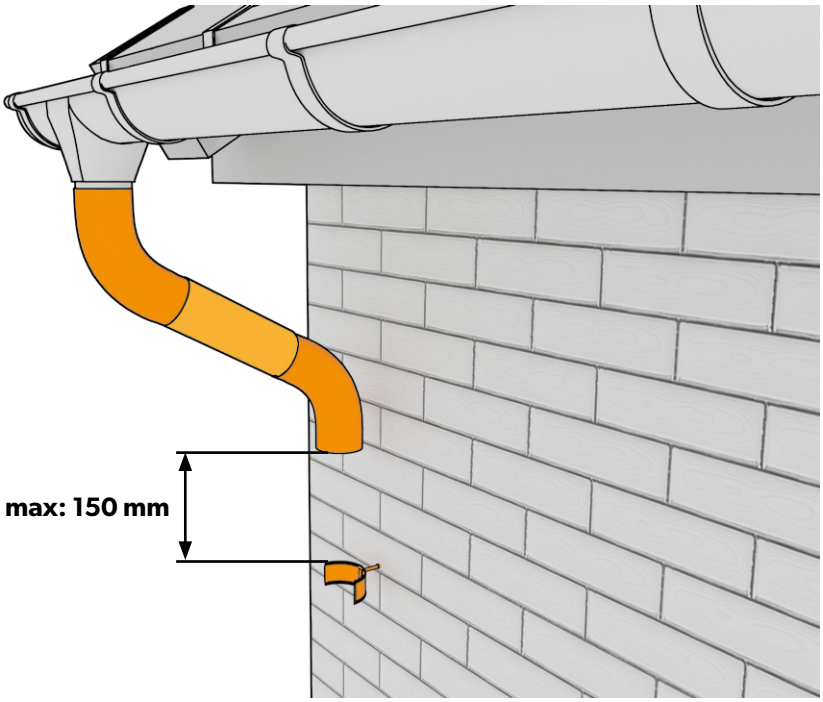


## 8. Installation of elbows and downpipe

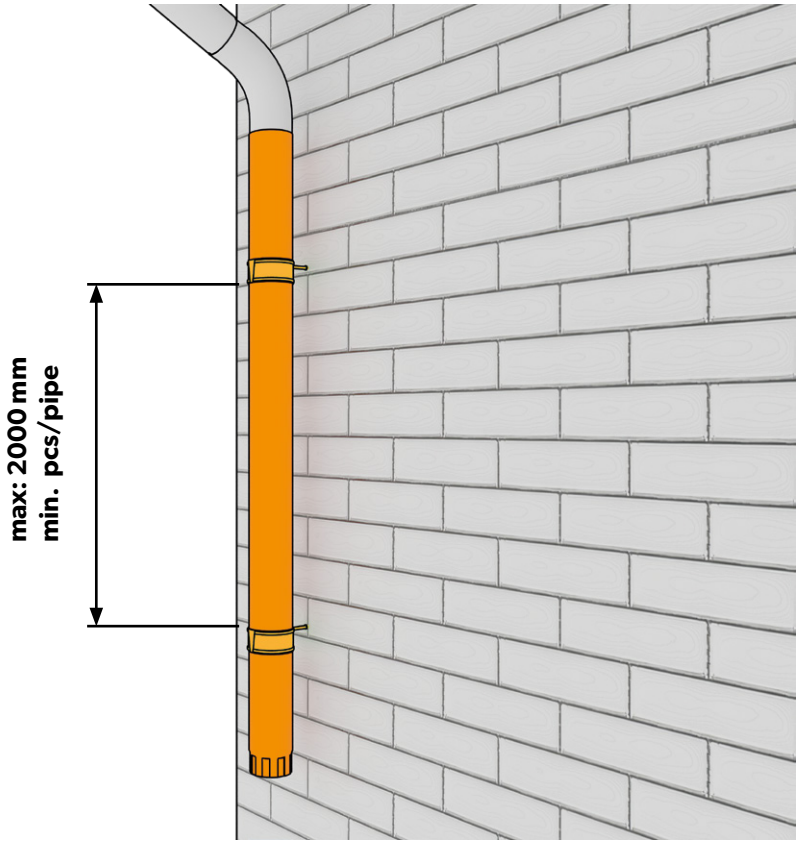
After placing the gutter with the outlet on the hooks, install the elbows, if necessary, installing between them a downpipe extension of such length as to obtain the appropriate distance of the downpipe from the building wall (**Fig. 26**). This distance depends on the type of clamps used.

The first clamp should be installed no lower than 150 mm under the below (**Fig. 26**). The downpipe should be installed to the wall with the use of clamps placed on it, in the number of not less than 2 pcs per pipe (**Fig. 27**).
The distance between the clamps should not exceed 200 cm.

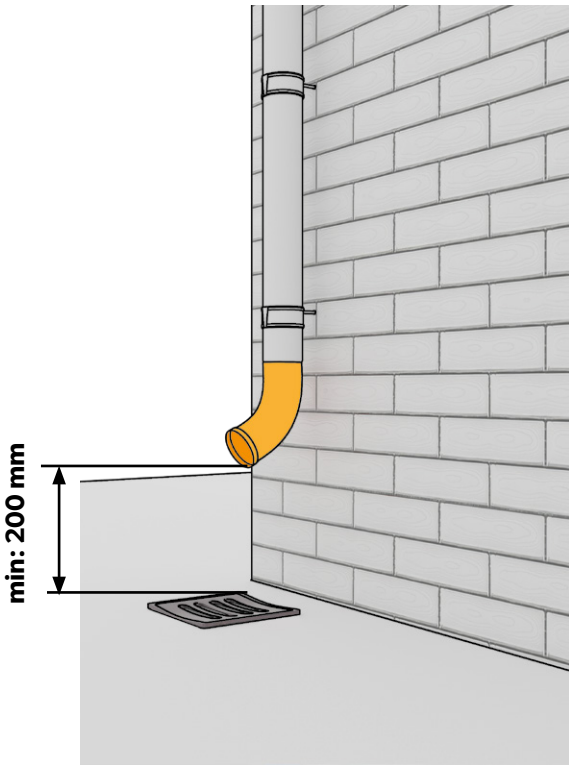
## FIG.26 ASSEMBLY OF DOWNPIPE ELBOW




## FIG.27 INSTALLATION OF THE DOWNPIPE



## FIG.28 ASSEMBLY OF THE SPOUT




It is recommended to keep a distance of min. 200 mm between the ground and the spout (**Fig. 28**).

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05/2022/**EN**