BILKA®

• roof system • rain system •

INSTALLATION GUIDE

RAINWATER SYSTEM

YOUR GUIDE
FOR INSTALLING THE BILKA RAINWATER SYSTEM

RULES FOR PRODUCT HANDLING, TRANSPORT, ACCEPTANCE AND STORAGE

- Transport and Handling

It is recommended to transport the products using tarp-covered vehicles. Pallets should not exceed the loading area and must be properly secured. Furthermore, the fastening devices must not damage the products.

- Acceptance of the Products

Upon delivery, it is recommended to check the products received against the shipping bill in order to identify possible product defects or any missing products from the order placed by the customer.

- Storage of the Products

It is required to store the elements of the roofing system indoors, in dry and well-ventilated locations, without major temperature fluctuations, removed from the package and placed on a wooden bed/support, with sufficient space between them, for a proper ventilation. If the products are stored for periods exceeding 45 days, it is considered a breach of the warranty conditions and no further claims shall be accepted in such cases.

GENERAL INSTALLATION PRINCIPLES

- The installation of the roof/rainwater system involves working at heights and risk of injury, therefore it is important for the fitters to wear protective equipment such as fixed ropes, helmets, gloves. In addition, tinner tools are required to cut the tile panels / accessories / rainwater system components (scissors for straight cuts, cutter, coated wire, lines for the alignment of the gutters, tinner marker, wedge hammer, grooved prism, folding pliers, pliers, screwdriver machine and proper bits for it).
- It is prohibited to cut the products using abrasive blades or other cutting tools that cause excessive local heating of the processed parts (failure to comply with this requirement is considered a breach of the warranty conditions).
- Wear shoes with soft soles when stepping on the cover, and only step on the area where the wood laths are placed (the sole must be regularly checked for any trimmings).
- During installation the trimmings must be removed from the surface of the products using a soft brush.

STEP 1 - SELECTING THE SIZE OF THE RAINWATER SYSTEM

The components of the BILKA rainwater system are available in two type sizes:

- **125 and 150 mm**: for gutters and their related elements, where size means the diameter of the elements;
- **90 and 100 mm**: for downspouts and their related elements, where size means the diameter of the elements.

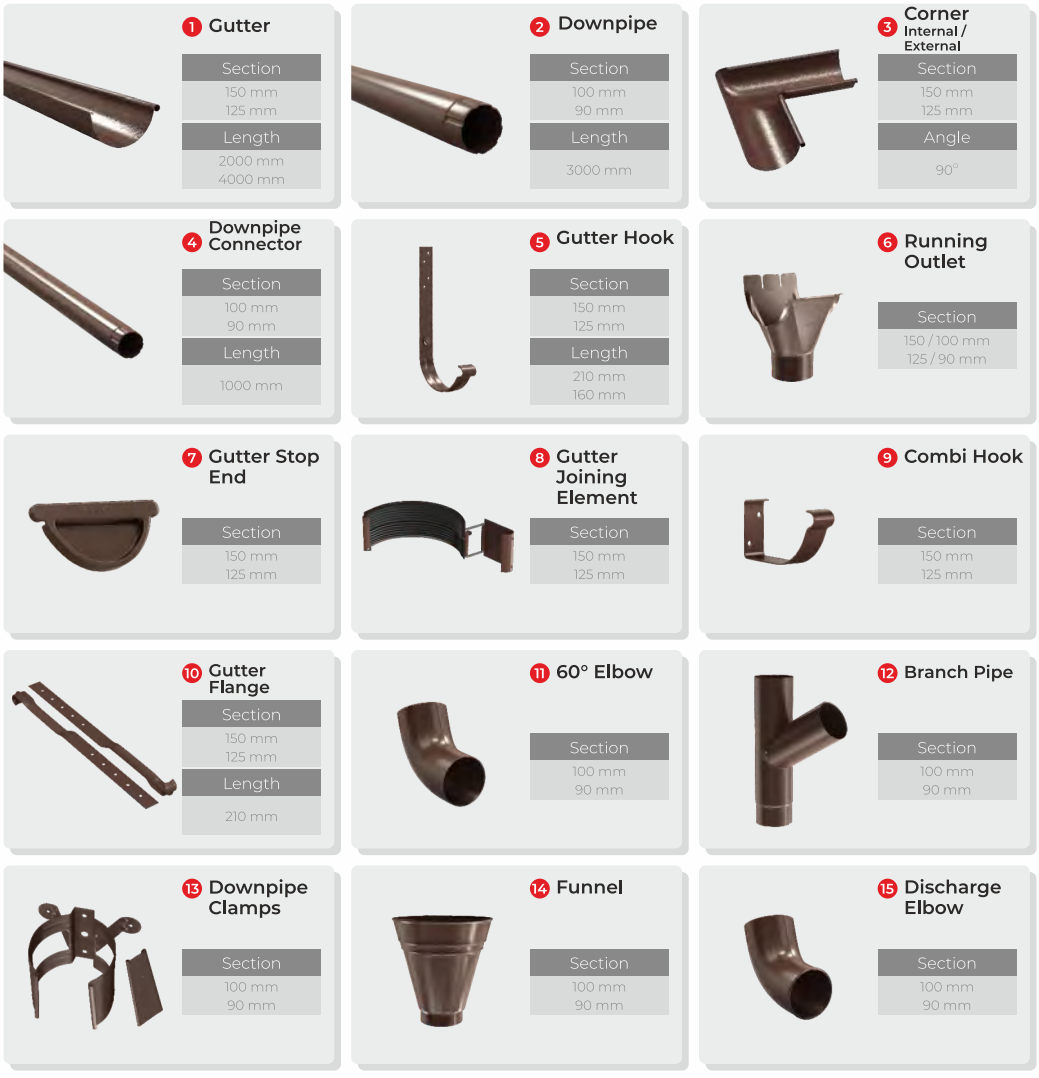
If 125 mm gutters are selected, the corresponding (90 mm) downspouts must be selected.
If 150 mm gutters are selected, the corresponding (100 mm) downspouts must be selected.

> The 125 mm elements are NOT compatible with the 100 mm elements, nor are the 150 mm elements with the 90 mm elements.
>
> Always use the 125/90 and 150/100 combinations.

The size of the rainwater system should be selected depending on the following:
- The estimated quantity of rainfall that will flow down each gutter;
- The estimated quantity of rainfall that will be collected and guided by each downspout.

The size (diameter) of the gutters and downspouts shall be selected depending on the roof area or the quantity of water that must be collected and discharged.
- For areas of up to 100 square meters the 125/90 rainwater system should be selected.
- For areas exceeding 100 square meters the 150/100 rainwater system should be selected.

The above sizes are recommended as minimum requirements for the efficient collection of rainwater; for more accurate data please consult with the BILKA specialist.



STEP 2 - IDENTIFICATION OF THE WATER DRAINAGE COLUMNS

The required number of gutters and downspouts depends on the architecture of each house, but also on the architecture of the roof. The gutter must have the same length as the rain shadow.

> It is recommended to have at least one downspout for each 8 linear meters of gutter.

Before installation it is important to prepare a drawing of the rainwater system to identify the drainage columns and the connectors. The slope of the gutter is determined and the hooks are installed depending on the number of downspouts. The downspouts are usually installed at the corners of the houses, unless otherwise required, in order to prevent them from affecting the design of the building.

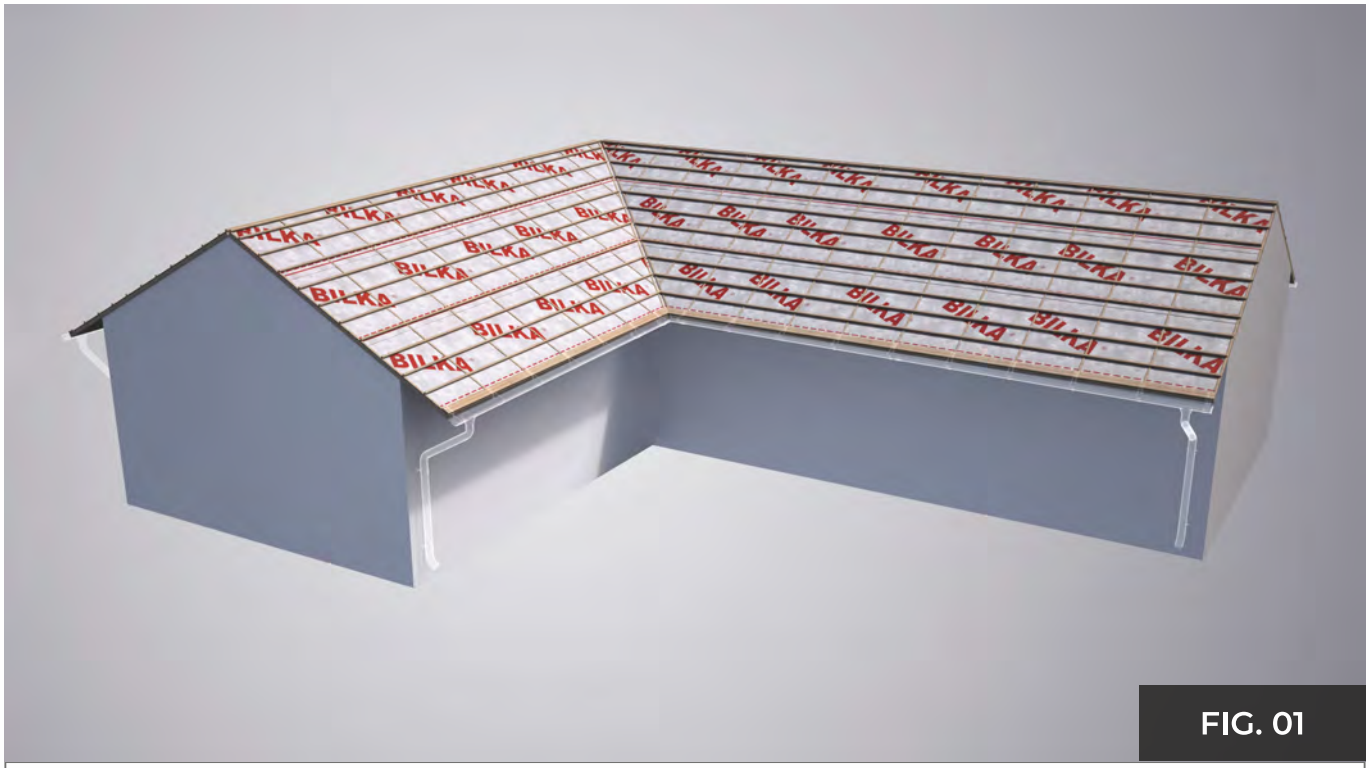


FIG. 01

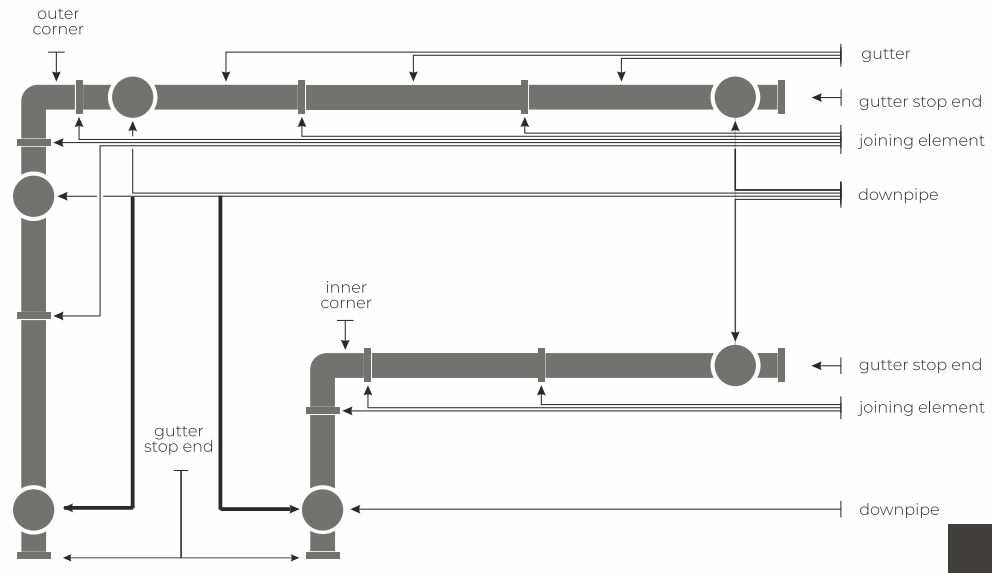


FIG. 02

STEP 3 - MARKING OF THE HOOKS

1 SELECTION OF THE HOOKS

The 210 mm long-tail hooks are installed underneath the cover on each rafter and bent to obtain the proper slope of the gutter (2-5 mm / lm). Combi hooks are installed directly on the front plank or beam, keeping a proper slope of the gutter (2-5 mm / lm).

Below you'll find an example of how 210 mm hooks are installed:

2 MARKING OF THE HOOKS

- shall be made considering the gutter's drainage points that guide the water towards the downspout, and the recommended slope of the gutters – 2 to 5 mm / lm.
- the number of hooks required shall be calculated taking into consideration that they will be installed on each rafter (recommended distance between the hooks: 600-900 mm)

Marking shall be performed as follows:

- the required hooks are aligned (FIG. 03)
- each hook is numbered in the order they will be installed on the roof (FIG. 04)

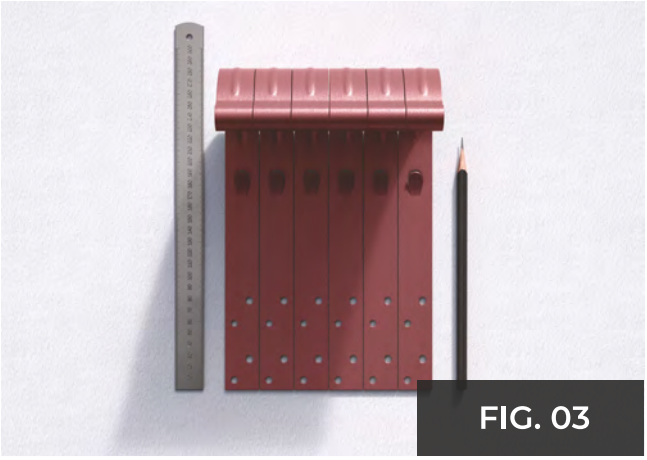


FIG. 03

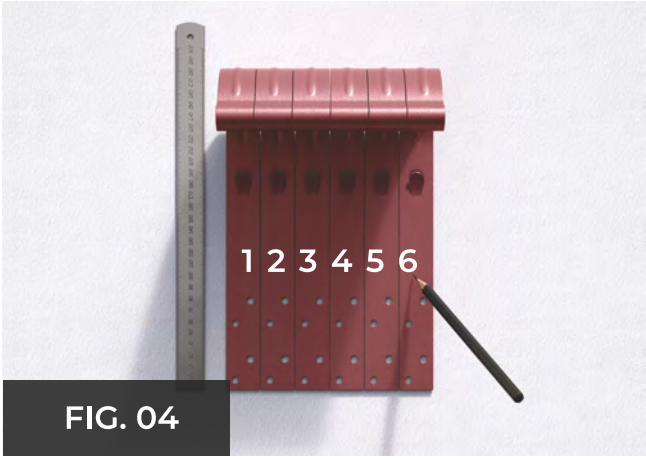


FIG. 04

- the marking shall consider the minimum bending rate of the hooks - 40 mm (this is the length of the device used to bend the hooks (FIG. 05)), a perpendicular line is drawn on each aligned hook (FIG. 06).

FIG. 05

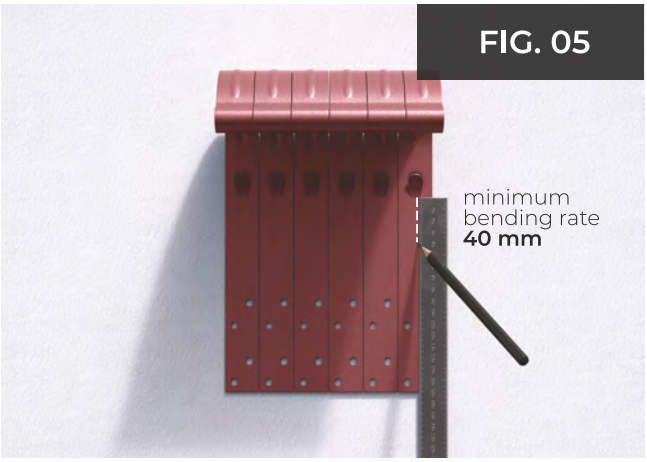
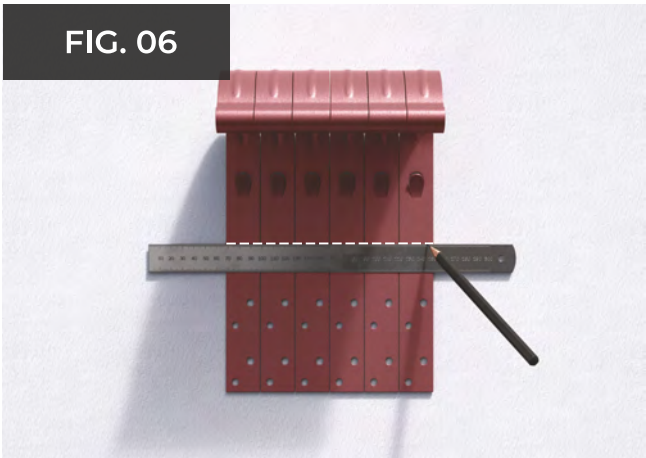


FIG. 06



STEP 3 - MARKING OF THE HOOKS

- The location of the downspout is marked (FIG. 07)
  (in this example the downspouts will be installed next to the first and the last hook).

“ The recommended slope of the gutters – 2 to 5 mm / lm.

- The highest and lowest points are marked – the slope of the gutter (FIG. 08).

FIG. 07

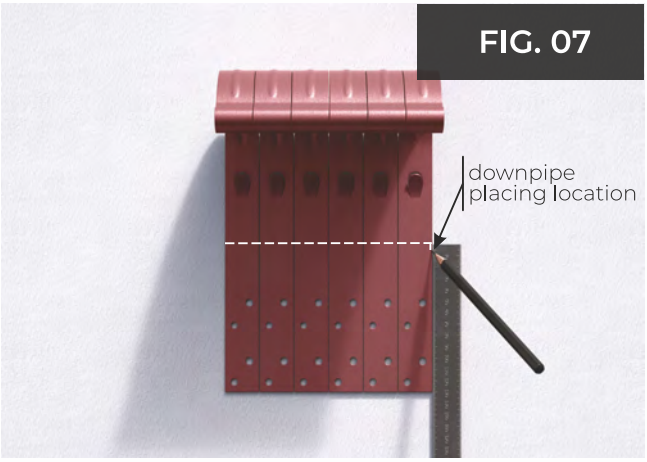
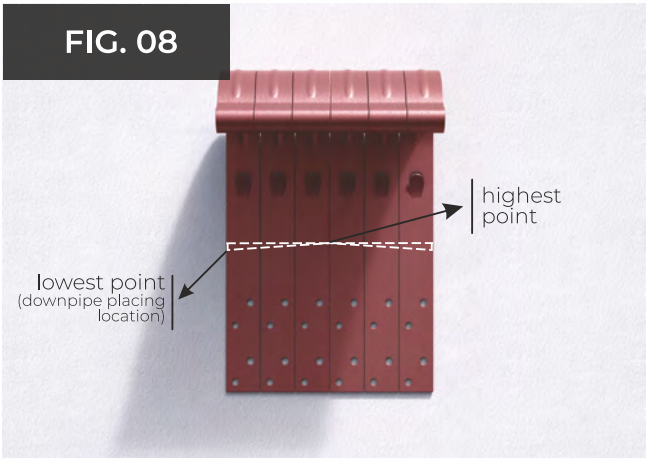


FIG. 08



STEP 4 - BENDING AND INSTALLATION OF THE HOOKS

BENDING OF THE HOOKS

The hooks marked at Step 3 will be bent using special pliers for bending hooks (FIG. 09).
The hook is positioned in the pliers taking into consideration the previously drawn slope line (FIG. 10, 11).

> The bending degree of the hook is determined depending on the roof, so as to have the hook in perfectly horizontal position at installation.
> (FIG. 12, 13, 14)

FIG. 09

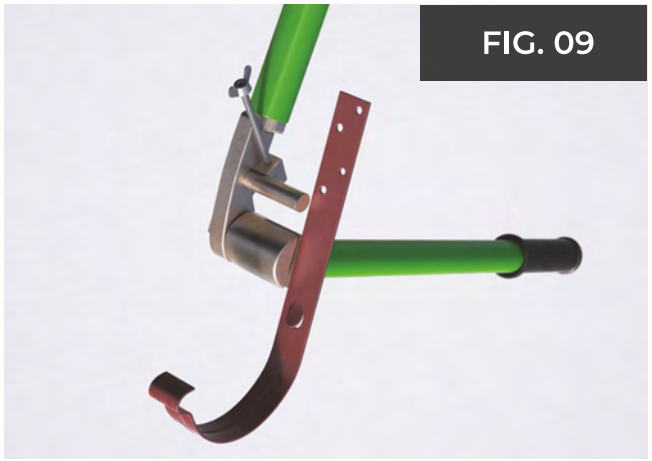


FIG. 10

FIG. 11

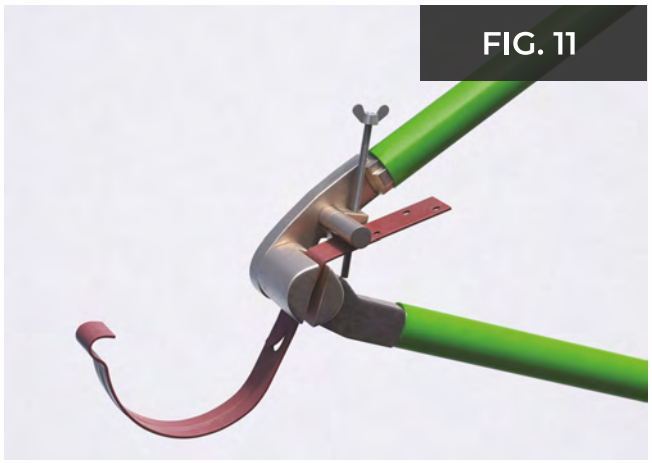


FIG. 12

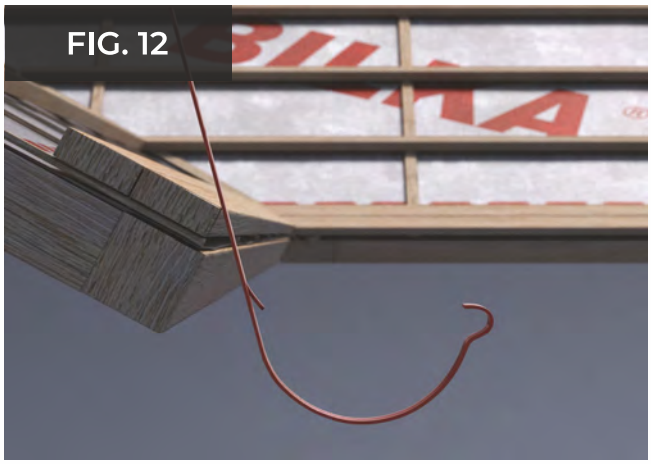


FIG. 13

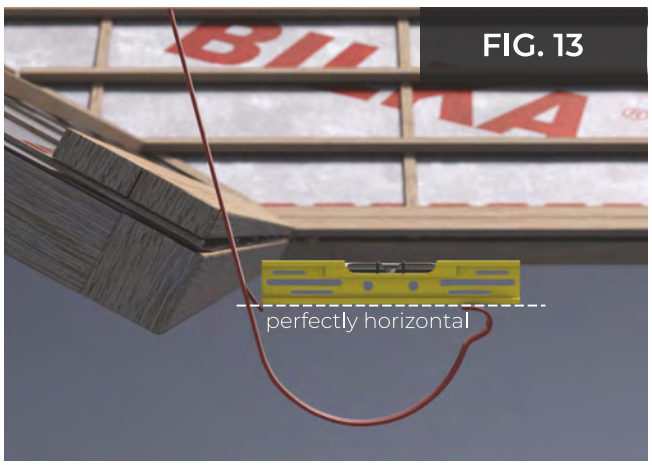


FIG. 14

STEP 4 - BENDING AND INSTALLATION OF THE HOOKS

INSTALLATION OF THE HOOKS

- Before being fastened, the hook is positioned taking into consideration the marked slope line (FIG. 17, 18).
- A hook is installed on each rafter - distance between hooks 600-900 mm (FIG. 17, 18).
- The hooks are fastened using wood screws or nails, in each hole provided from factory on the hooks (FIG. 15).
- If corners are used, place one hook on each side of the corner (FIG. 16).

FIG. 15

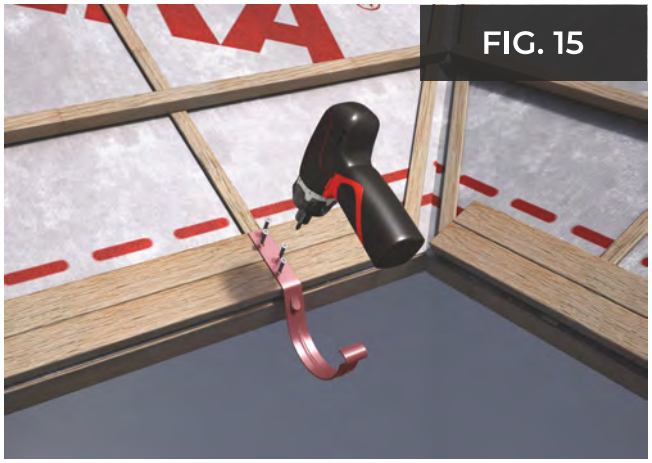


FIG. 16

FIG. 17

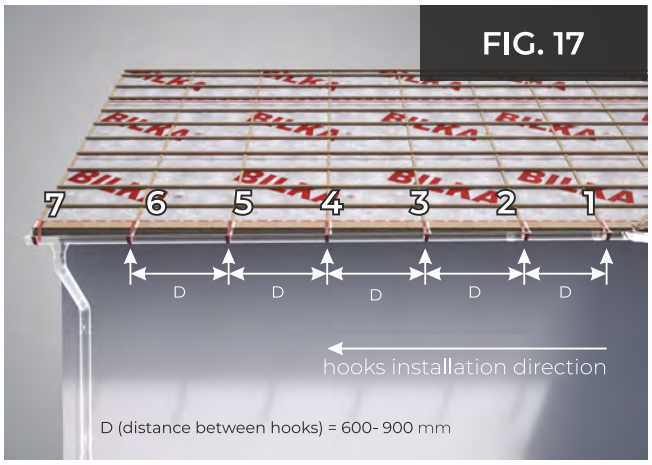
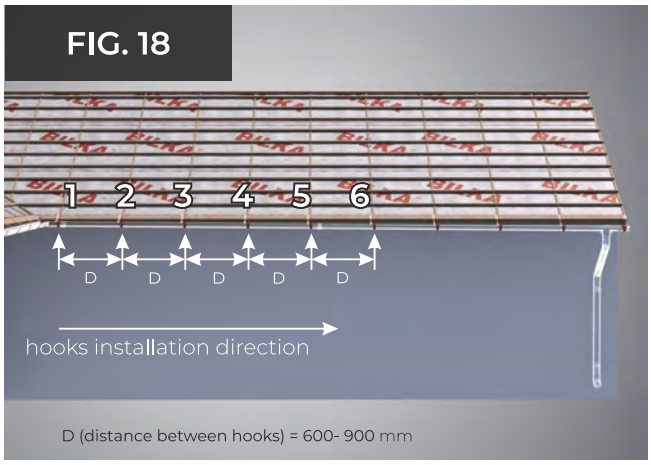


FIG. 18



STEP 5 - INSTALLATION OF THE CORNERS AND SIZING OF THE GUTTER

1 The corners are installed before the installation of the gutter. Position the end of the corner facing the rain shadow in the spur on the hook and then press the outside edge into the lock (FIG. 19, 20).

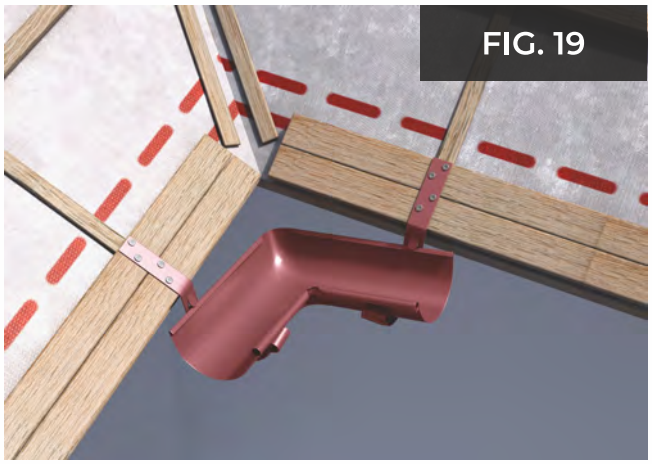


FIG. 19

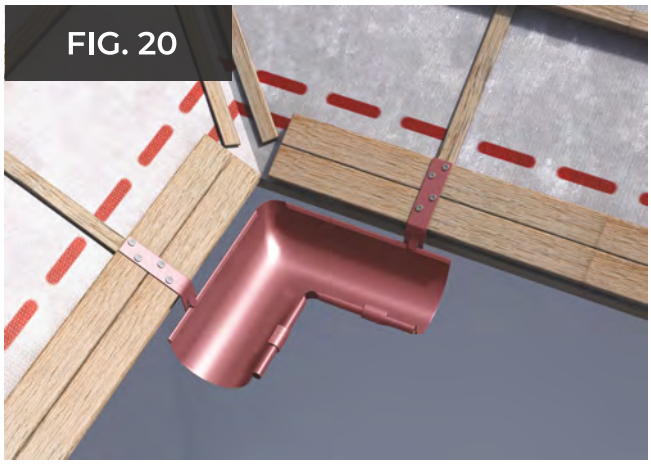


FIG. 20

2 Measure the required size for the gutter (FIG. 21). The gutters and corners are placed keeping a distance of 1-2 mm to compensate for the trough expansion and contraction of the gutter due to changes in temperature (FIG. 22).

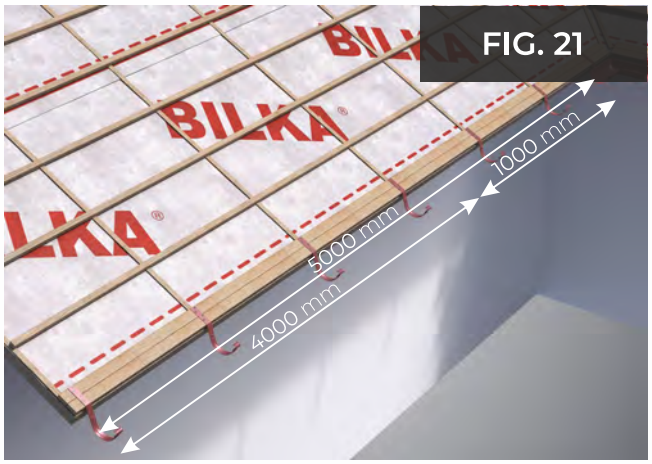


FIG. 21

FIG. 22

3 Mark the gutter (FIG. 23) and cut it with a hacksaw (FIG. 24); do not use abrasive blade / flex.

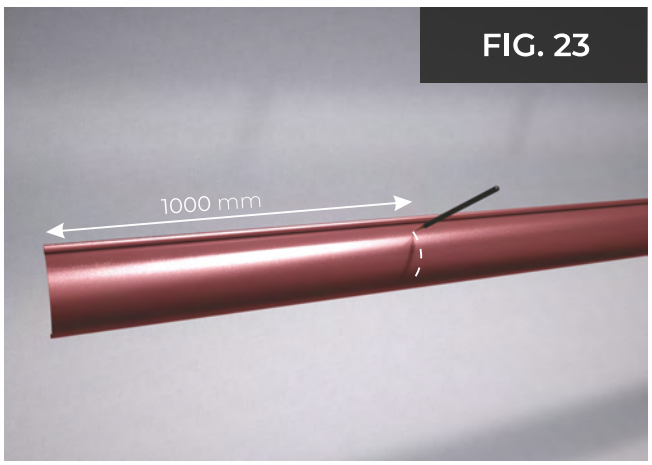


FIG. 23


FIG. 24

STEP 6 - CUTTING THE GUTTER – RUNNING OUTLET

Place the gutter on the supporting hooks without fastening it.

On the gutter, mark the point where the running outlet is to be installed (FIG. 25), then mark the gutter, taking into consideration the size of the downspout (90 mm or 100 mm) (FIG. 26).

“ This is the place where the collection points will be located.

FIG. 25

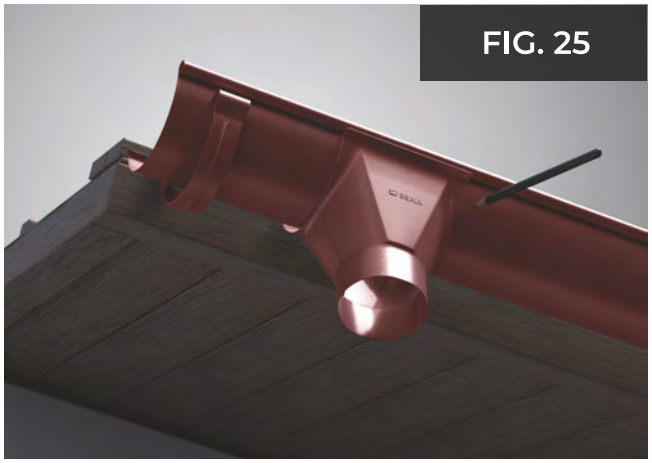
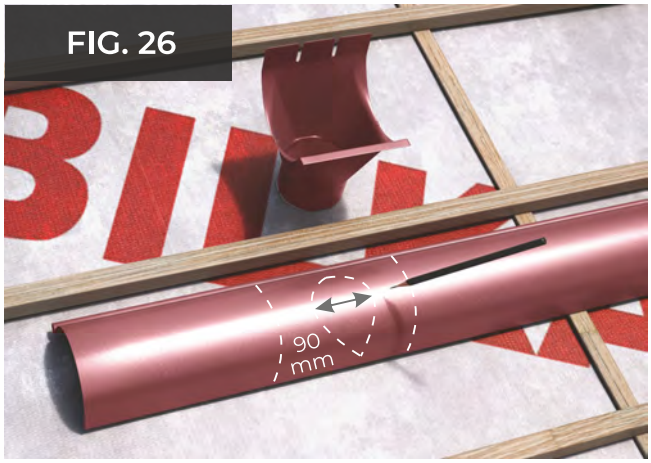


FIG. 26



Use a hacksaw or manual scissors to cut following the marking (FIG. 27, 28).

“ WARNING: do not use a circular saw / flex for this.

Bend the cut edges outward, to allow water to be discharged to the header (FIG. 29).

FIG. 27

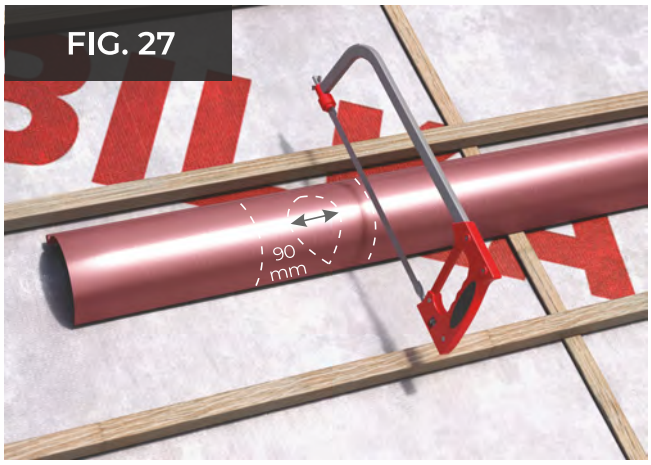


FIG. 28

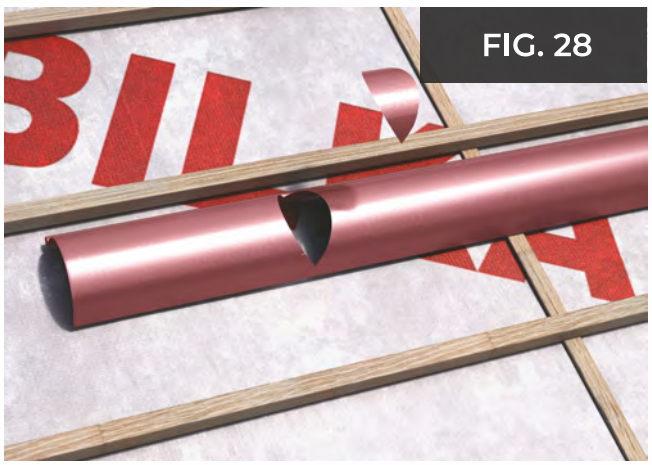
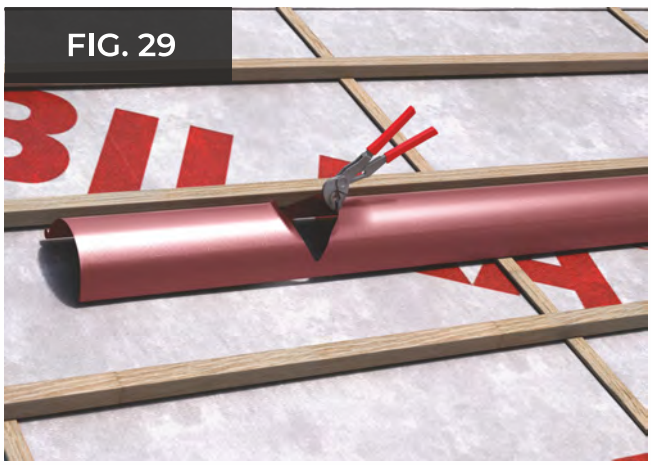


FIG. 29



STEP 7 - INSTALLATION OF THE GUTTER AND RUNNING OUTLET

1 Install the gutter by inserting the end facing the rain shadow in the spur on the hook and then press the outside edge into the lock. Then install the other gutters. (FIG. 30, 31)

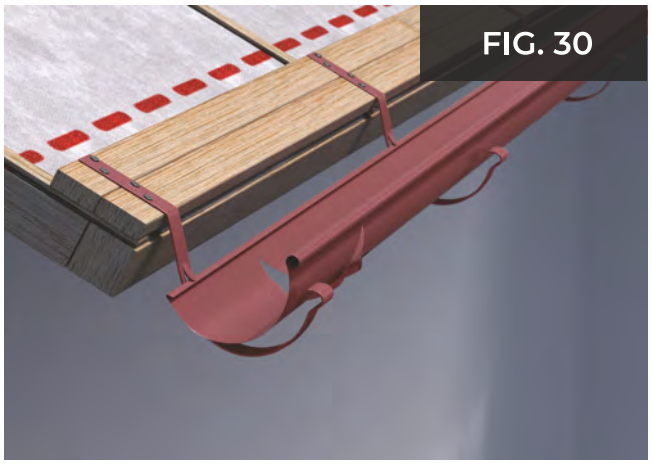


FIG. 30

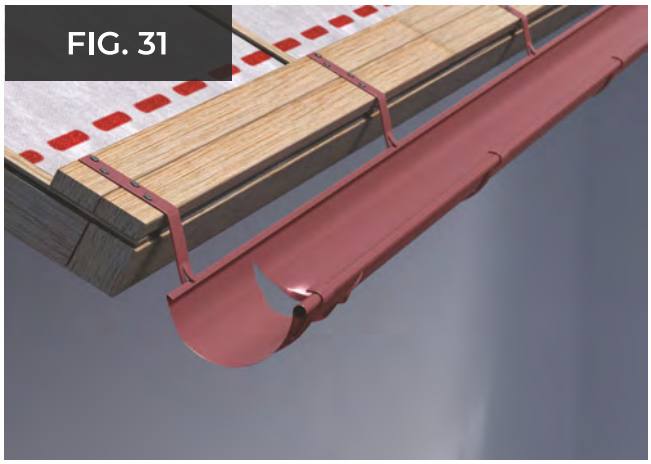


FIG. 31

2 Install the running outlet by inserting its bent edge into the outside channel of the gutter. Push the running outlet to the inside to integrate the gutter and secure it by bending the safety tabs onto the gutter (FIG. 32, 33, 34, 35).

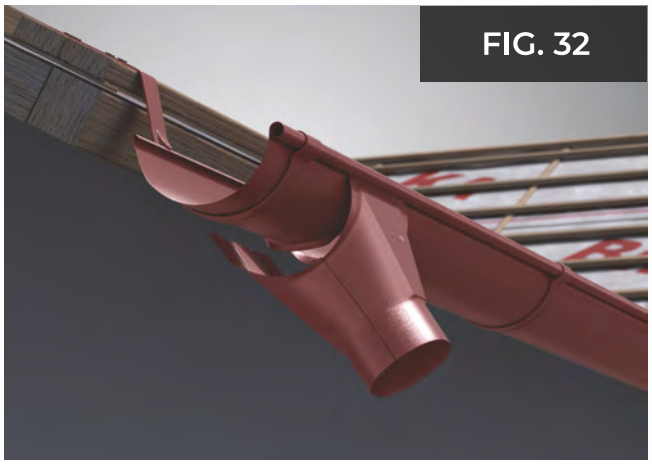


FIG. 32


FIG. 33

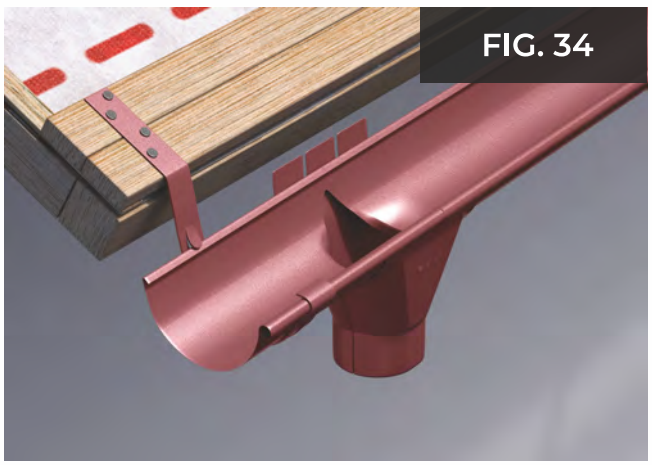


FIG. 34

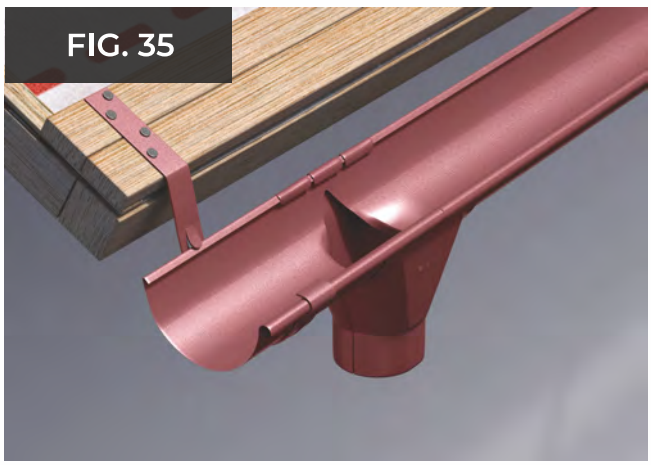


FIG. 35

STEP 8 - INSTALLATION OF THE GUTTER STOP END

Install the stop ends at the ends of the gutters using a rubber hammer, thus fastening the gutter in the channel fitted with the stop end from factory. (FIG. 36, 37, 38)

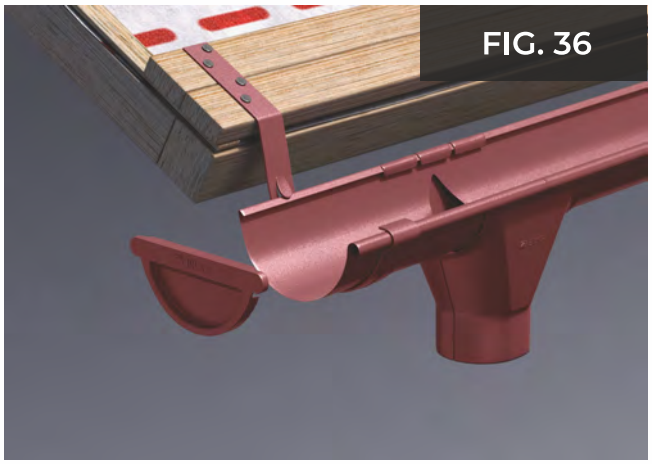


FIG. 36

FIG. 37

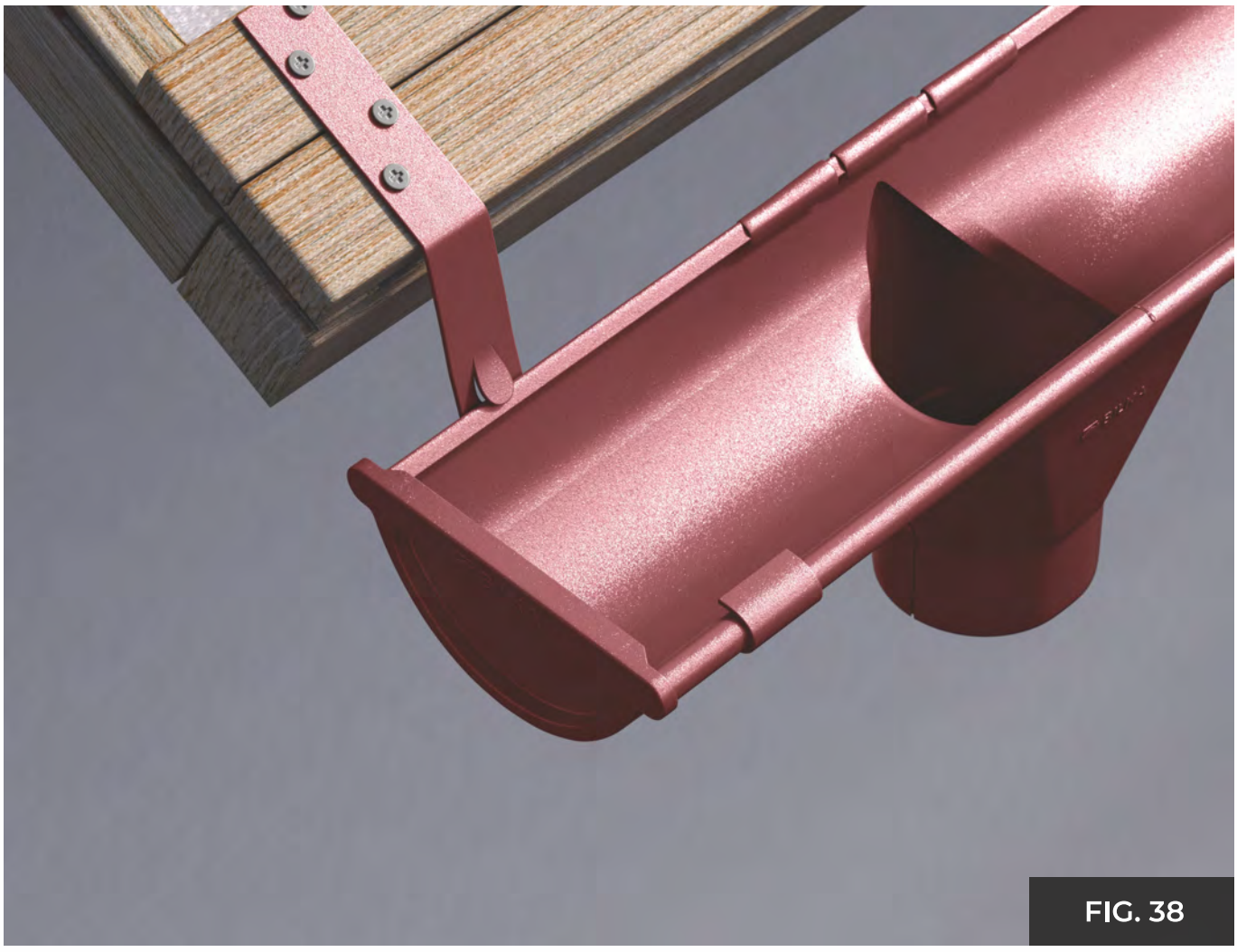


FIG. 38

STEP 9 - INSTALLATION OF THE JOINING ELEMENT

Install the connector starting from the back of the gutter, so as to have the gasket at the joint between the two gutters or between the gutter and the bracket (FIG. 39, 40).

Then place and close the clamp of the piece on the front side of the gutter (FIG. 41).

Secure it by bending the safety tab fitted from factory on the piece (FIG. 42).

“ Further fasten the connector by wood screws in each hole of the piece provided from factory. (FIG. 43, 44)

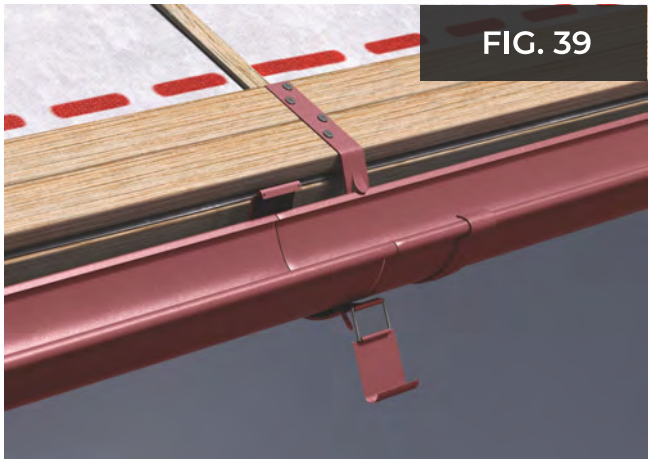


FIG. 39

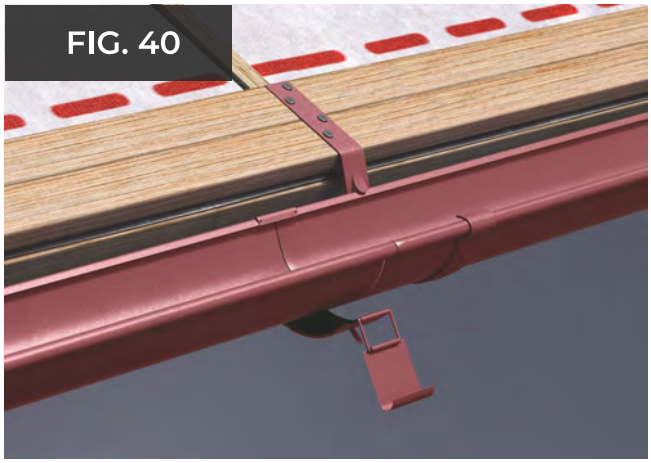


FIG. 40

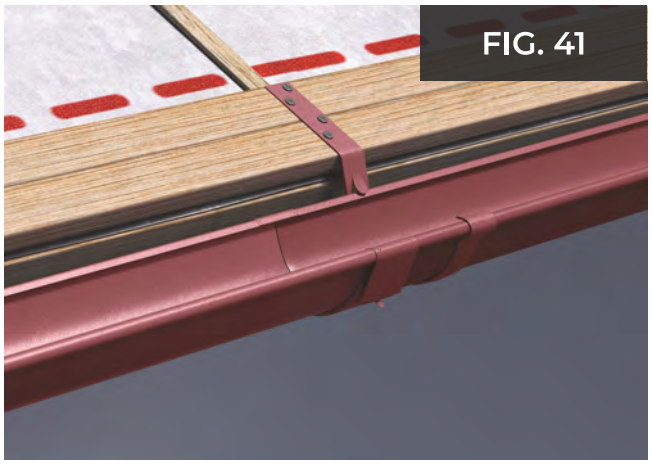


FIG. 41

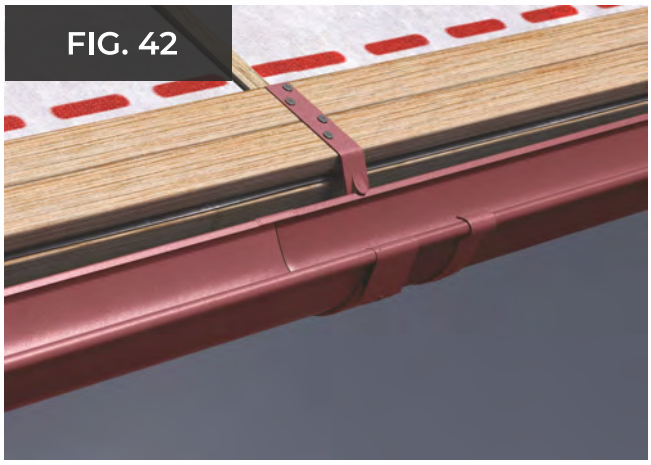


FIG. 42

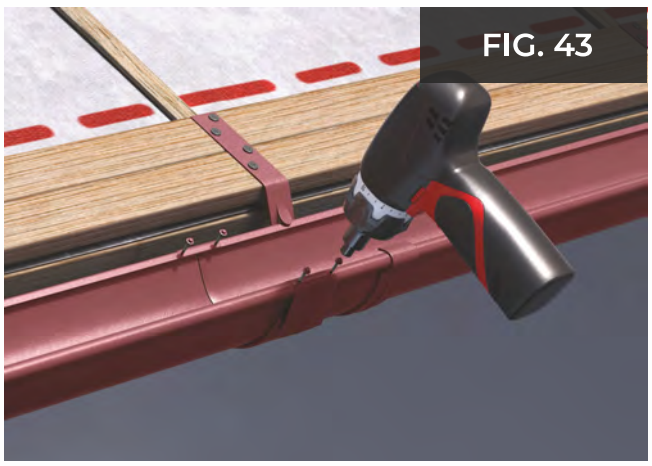


FIG. 43

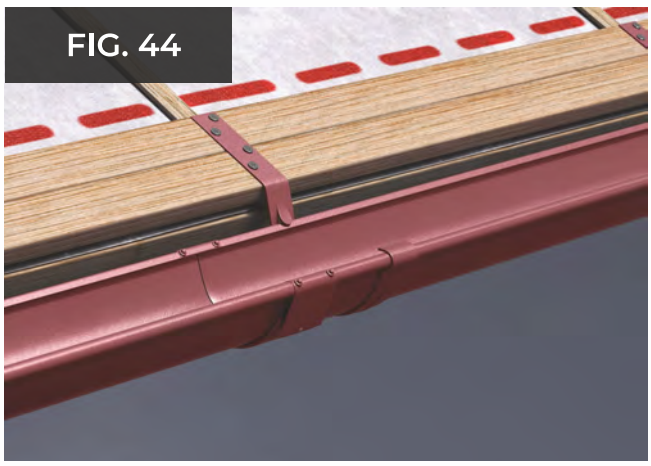


FIG. 44

STEP 10 - INSTALLATION OF THE DOWNPIPE CLAMP

Fasten the downpipe clamp on the façade of the building using wood screws / dowels, depending on the finishing of the façade. Install it in line with the running outlet (FIG. 45).

- depending on the length of the downspout, install one or more clamps on the same line.
- the distance between two clamps should not exceed 3 meters.

If it is necessary to join two downspouts, one downpipe clamp shall be installed at the joint.

FIG. 45

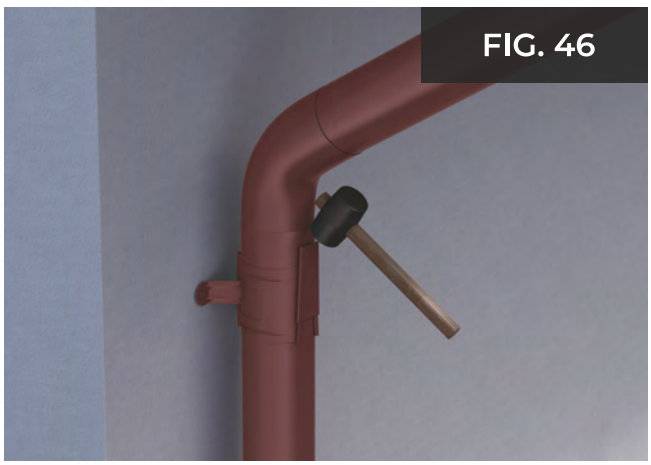


FIG. 46

After the downspouts are positioned in the clamps, insert the safety nibs in the two guides fitted on each clamp from factory.

- Use a rubber hammer to fully insert the nibs, and provide rigidity to the downspouts.
  (FIG. 46)

STEP 11 - INSTALLATION OF THE 60-DEGREE ELBOW / DOWNSPOUT / DISCHARGE ELBOW

1 Connect the 60-degree elbow to the funnel if the rain shadow of the house exceeds the level of the wall (FIG. 47).
If the rain shadow of the house does not exceed the level of the wall, the downspout must be connected directly to the funnel, as the elbow is no longer needed.

2 Connect the 60-degree elbows using intermediate pipes.
In order to determine the length of the intermediate pipes, place the second elbow at a distance of 30 mm from the wall, without fastening it (as this is the length of the supports of the downpipe clamp) and measure the distance between the two elbows (FIG. 48, 49).

FIG. 47

FIG. 48

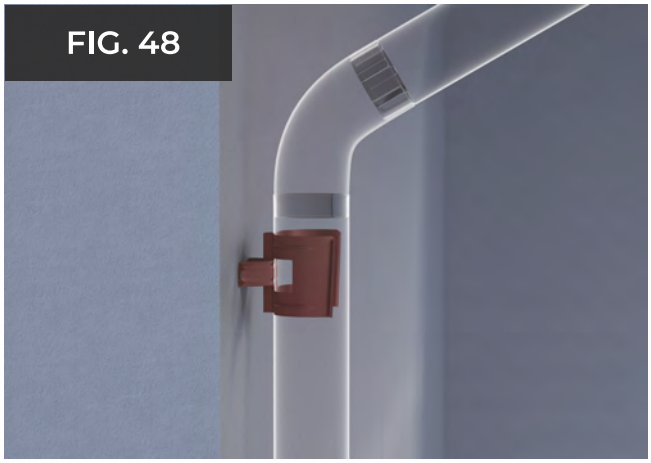
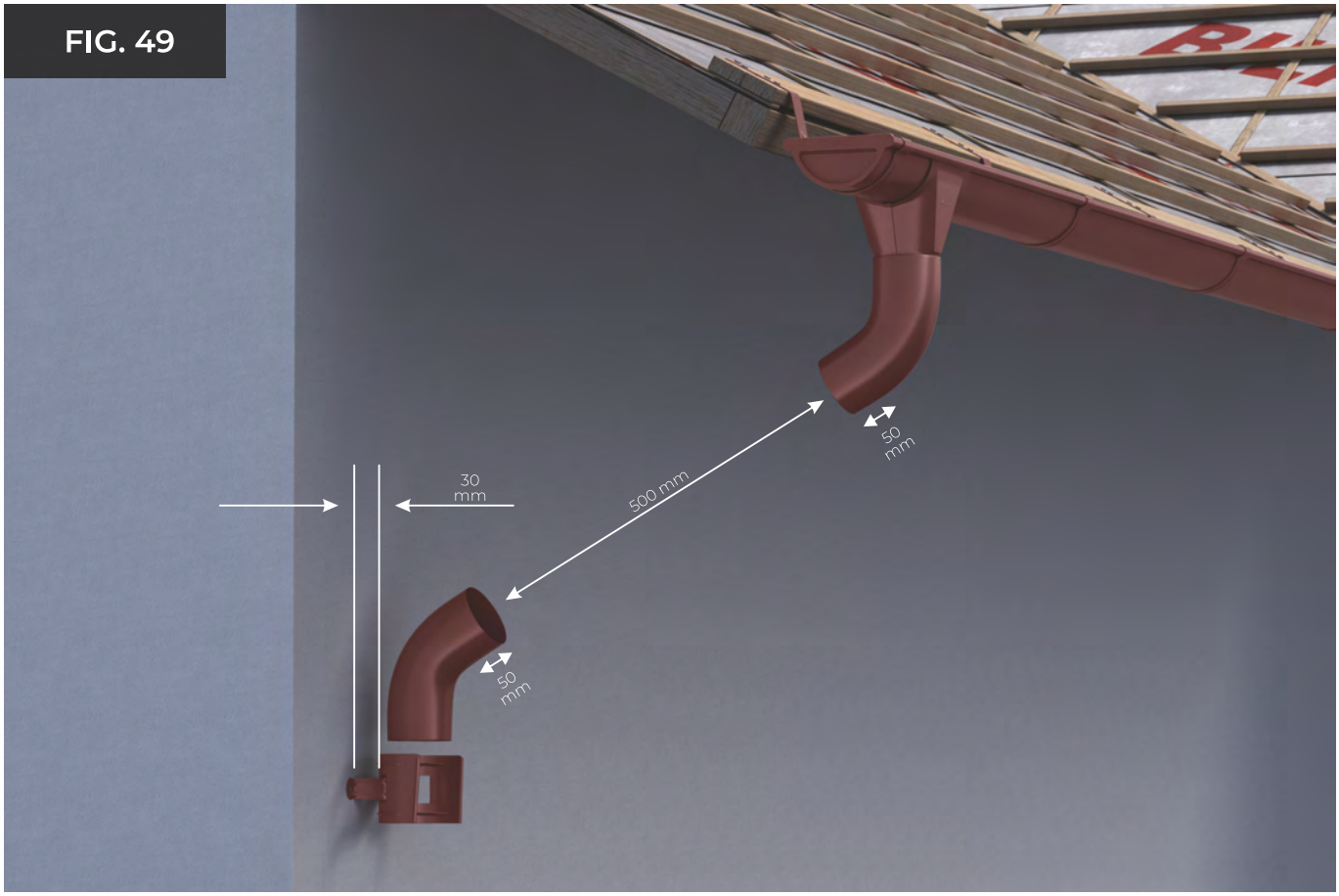


FIG. 49



STEP 11 - INSTALLATION OF THE 60-DEGREE ELBOW / DOWNSPOUT / DISCHARGE ELBOW

3 In order to size the intermediate pipe that connects the two elbows at the length measured in FIG. 49 (500 mm), add 100 mm (50 mm + 50 mm for the joining areas at the two ends of the intermediate pipe) (FIG. 50).

Cut the intermediate pipe with a hacksaw to the calculated size. Always measure from the crimped side of the intermediate pipe provided from factory.

“ DO NOT use a circular saw / flex for this.
(FIG. 51)

FIG. 50

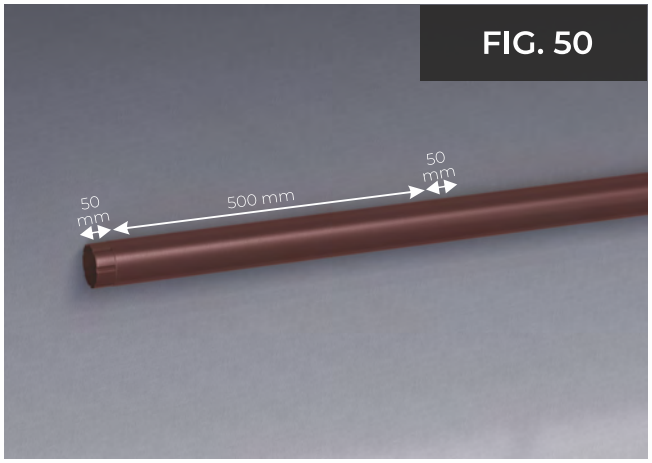


FIG. 51

STEP 11 - INSTALLATION OF THE 60-DEGREE ELBOW / DOWNSPOUT / DISCHARGE ELBOW

Join the two elbows using the intermediate pipe in the direction of the water flow and fasten them on the running outlet (FIG. 52).

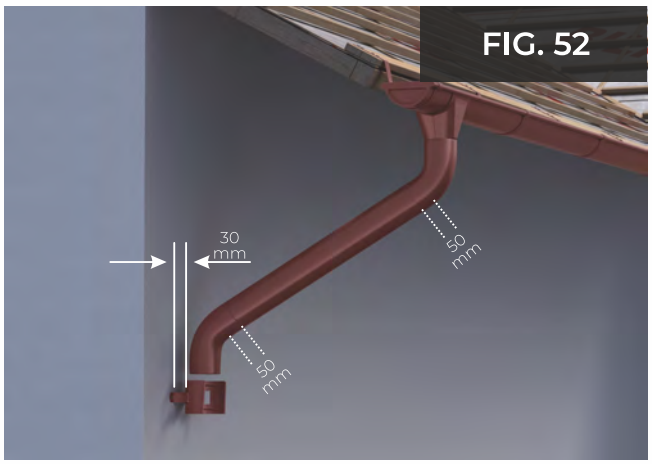


FIG. 52

Once the elbows and the intermediate pipe have been installed, the downspout must be sized as follows:

a To determine the length of the downspout, place the discharge elbow at a distance of 30 mm from the wall without fastening it (as this is the length of the supports of the downpipe clamp) and measure the distance between the discharge elbow and the 60 degree elbow installed previously (FIG. 53). Place the discharge elbow at a distance of 100 mm from the ground.

- Similarly, as when sizing the intermediate pipe, in case of the downspout add 100 mm to the distance measured between the discharge elbow and the 60 degree elbow.
  " 50 mm + 50 mm for the joining areas at the two ends of the downspout.
  (FIG. 54)

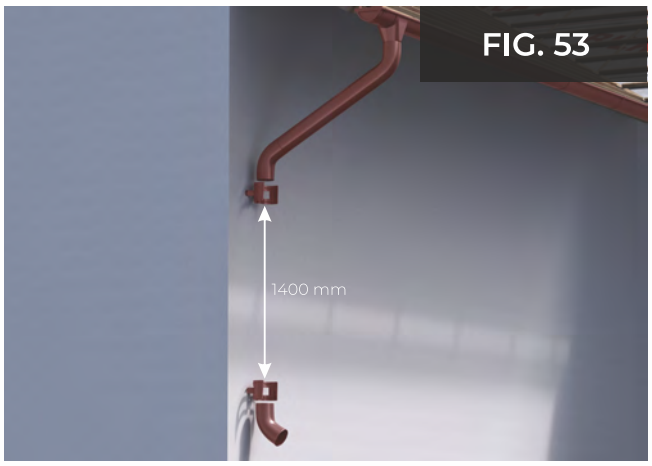


FIG. 53

b Cut the downspout with a hacksaw to the calculated size. Always measure from the crimped side of the downspout provided from factory.

" DO NOT use a circular saw / flex for this

C Install the discharge elbow on the downspout, join the downspout with the elbow installed on the intermediate pipe and fasten it on the wall by closing the downpipe clamp.

- The clamp is closed by inserting the safety nibs in the two guides fitted on each clamp from factory.
  " Use a rubber hammer to fully insert the nibs.
  (FIG. 55)

FIG. 54


FIG. 55

STEP 12 - INSTALLATION OF THE GUTTER FLANGE

A gutter flange must be installed next to each hook, over the rain shadow edge (FIG. 56).

- Fasten the flange to the rain shadow using self-tapping flat head screws, in each hole provided from factory on the clamp (FIG. 57).
- Fasten the flange to the gutter using self-tapping screws with gaskets (4.8x19), in each hole provided from factory on the clamps (FIG. 58).

FIG. 56

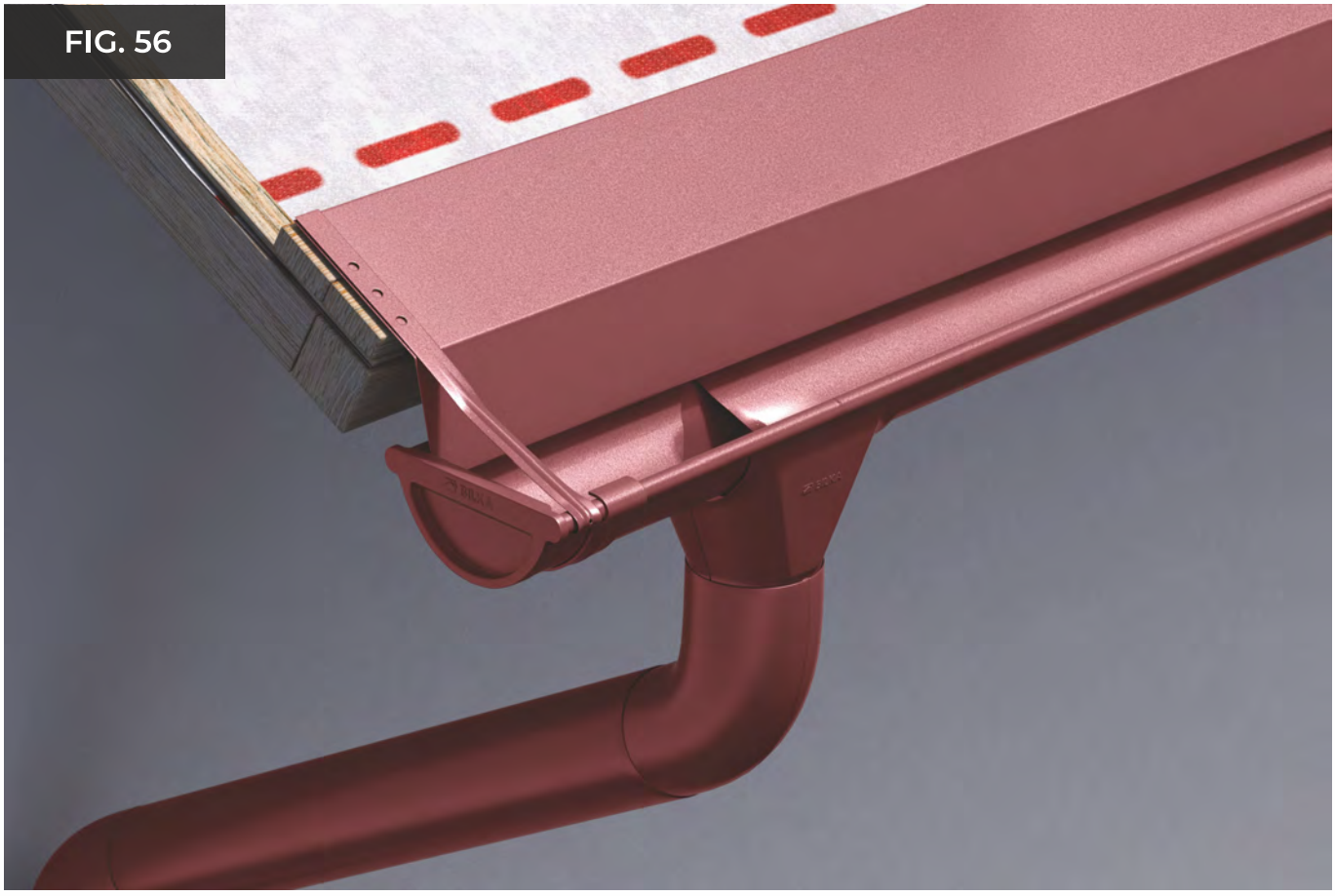


FIG. 57

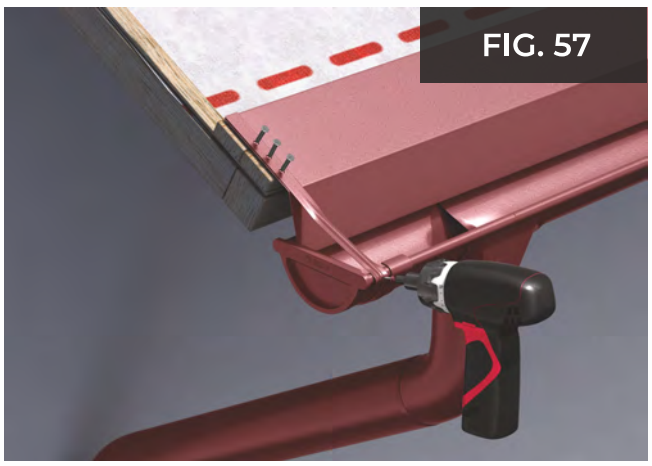


FIG. 58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WARRANTY CERTIFICATE

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BILKA STEEL hereby guarantees that the products subject matter of this certificate are manufactured and certified by the manufacturer in accordance with the applicable standards and parameters, and that they comply with the European quality standards.

The warranty is granted pursuant to Law No. 449/2003.

The guarantee granted by BILKA STEEL
for COLOR and CORROSION
characteristics is:


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KA STEEL products have been cut with abrasive blades or other cutting tools that cause g of the processed parts.

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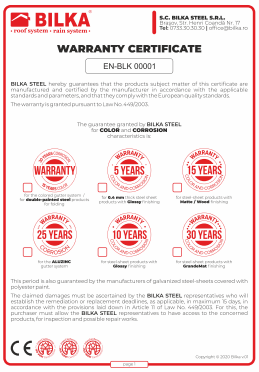
- The products have been chemically damaged in a corrosive environment or because of the prolonged contact with other materials: wet concrete, copper, mortar, soil, paint.
- The products have been subject to mechanical or other kind of changes due to inadequate transport, handling or storage (unless BILKA STEEL is liable for such events).
- The pre-painted BILKA STEEL products have been cut with abrasive blades or other cutting tools that cause excessive local heating of the processed parts.
- The BILKA STEEL products have been machined at a working temperature below - 10 degrees C, when machine bending has been used.
- The BILKA STEEL products have been tooled at a working temperature above +5 degrees C, when manual bending has been used.
- During the storage and mounting period, the products have been in direct contact with wet concrete, copper, soil, other corrosive materials or in permanent or prolonged contact with water.
- During the use period, direct contact with wet concrete, copper, or other corrosive materials has not been prevented.
- The BILKA STEEL products have been stored for more than 45 days.
- The warranty does not cover product damages because of the beneficiary's failure to use the accessories recommended and supplied by BILKA STEEL, or because of the faulty assembly.
- The warranty does not cover product damages caused by the incorrect use of the retouch spray.
- The warranty does not cover damages arising from events of force majeure, such as: war, riot, natural disasters, fire etc.
- The beneficiary shall lose its rights to warranty if, upon the notification of a defect of the BILKA STEEL products, it fails to provide the original invoice related to the purchase of the goods.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BILKA STEEL hereby guarantees that the products subject matter of this certificate are manufactured and certified by the manufacturer in accordance with the applicable standards and parameters, and that they comply with the European quality standards.

The warranty is granted pursuant to Law No. 449/2003.

The guarantee granted by BILKA STEEL
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characteristics is:

WARRANTY 5 YEARS 15 YEARS
25 YEARS 10 YEARS 30 YEARS

This period is also guaranteed by the manufacturers of galvanized steel-sheets covered with polyester paint.

The claimed damages must be ascertained by the BILKA STEEL representatives who will establish the remediation or replacement deadlines, as applicable, in maximum 15 days, in accordance with the procedure laid down in Article 11 of Law No. 449/2003. For this, the purchaser must allow the BILKA STEEL representatives to have access to the concerned products, for inspection and possible repair works.

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- The products have been subject to mechanical or other kind of changes due to inadequate transport, handling or storage (unless BILKA STEEL is liable for such events).
- The pre-painted BILKA STEEL products have been cut with abrasive blades or other cutting tools that cause excessive local heating of the processed parts.
- The BILKA STEEL products have been machined at a working temperature below - 10 degrees C, when machine bending has been used.
- The BILKA STEEL products have been tooled at a working temperature above +5 degrees C, when manual bending has been used.
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- During the use period, direct contact with wet concrete, copper, or other corrosive materials has not been prevented.
- The BILKA STEEL products have been stored for more than 45 days.
- The guarantee does not cover product damages because of the beneficiary's failure to use the accessories recommended and supplied by BILKA STEEL, or because of the faulty assembly.
- The guarantee does not cover product damages caused by the incorrect use of the retouch spray.
- The guarantee does not cover damages arising from events of force majeure, such as: war, riot, natural disasters, fire etc.
- The beneficiary shall lose its rights to warranty if, upon the notification of a defect of the BILKA STEEL products, it fails to provide the original product purchase invoice and the original warranty certificate.
- The rights conferred by this commercial guarantee shall not affect the rights conferred by the Consumer Protection Law.

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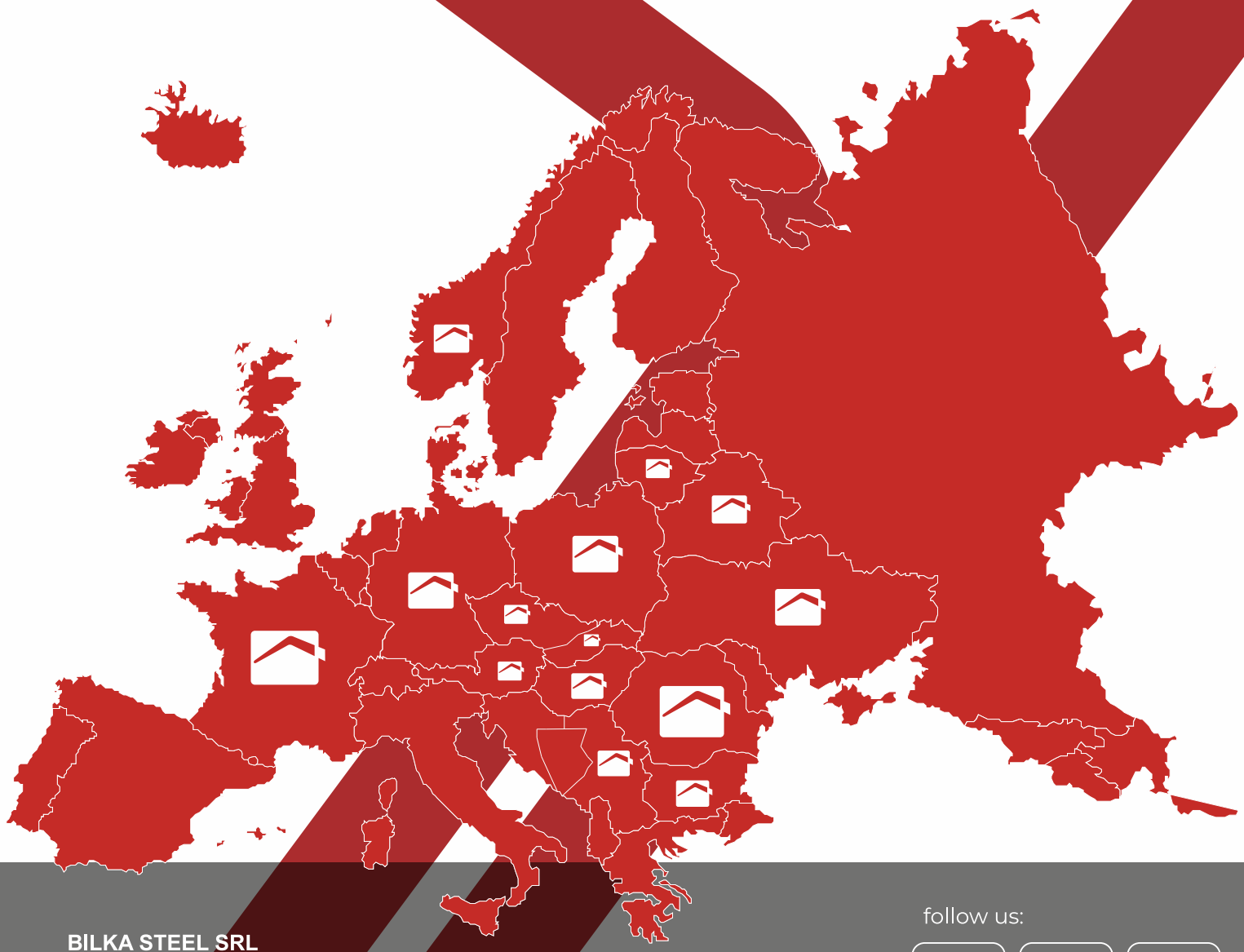

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