

## DIMENSIONS AND APPLICATIONS OF *StalGam* GUTTER SYSTEMS

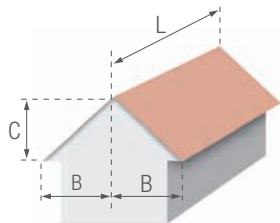
Gutter	Downspout	A	B	C	D <sub>Z</sub>	E	System	Gutter developed width	Application
		125	84	0,6	87	0,6	130/90	280	single-family houses
		125	84	0,6	100	0,6	130/100	280	single-family houses
		150	89	0,6	100	0,6	150/100	333	large residential buildings, industrial and commercial facilities

## EFFICIENCY OF *StalGam* GUTTER SYSTEMS

Selecting the gutter system, you need to make sure that gutters and downspouts will collect water from the surface of the roof of your building. To do this, calculate the so-called effective roof area, to be drained by the system.

When calculating the effective roof area, use the following formula:

$$S = (B + 0,5 C) \times L$$

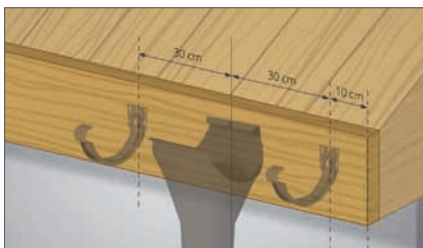
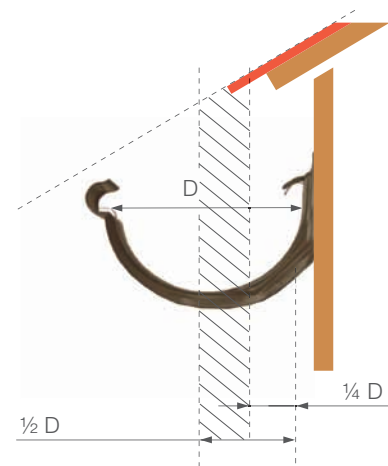


Maximum areas drained by *StalGam* gutter systems in square meters of the effective roof area (per one downspout)

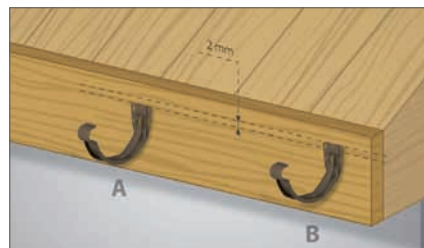
Gutter system	System 130/90 and 130/100	System 150/100
downspout location	Gutter 125 mm, downspout 87 mm or 100 mm	Gutter 150 mm, downspout 100 mm
	200	350
	100	175
	86	140

## SEQUENCE OF INSTALLATION OF *StalGam* GUTTER SYSTEMS

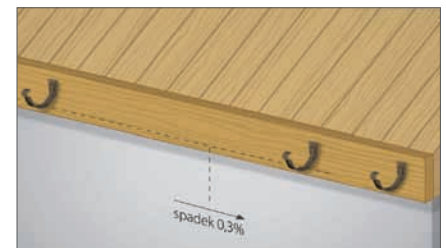
The recommended location of the gutter relative to the roof slope and the roof edge position is shown on the drawing.



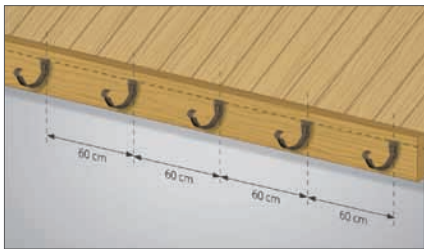
1. Mark the position of the axis of the drop outlet and the nearest hangers on the fascia board. Install the end gutter hanger at a distance of about 10 cm from the roof edge.



2. Install the lowermost hanger. Install the hanger on the other side of the drop outlet 2 mm higher than the lowest hanger. Hangers shall be located at a distance not less than 20 cm from the gutter connections.



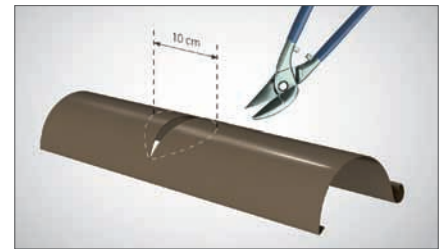
3. Install the gutter hangers furthest from the drop outlet ensuring that a minimum slope of 3 mm per 1 m is provided (recommended slope is 5 mm per 1 m).



4. Using a chalk line, mark the slope and install intermediate hangers (their spacing to be approx. 60 cm). The hangers on both sides of a corner shall be installed on the same level.



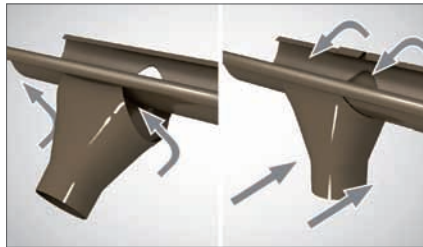
5. Place the gutter on the hangers and mark the location of a drop outlet.



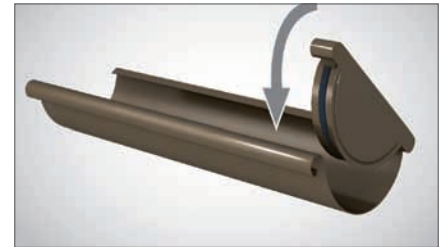
6. Cut a gap using a metal saw and then cut out a hole in the gutter (hole diameter to be approx. 10 cm). For cutting, do not use angle grinders.



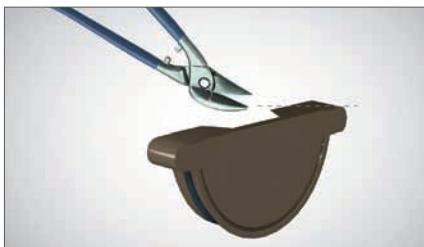
7. In the bottom part of the gutter, bend the hole edge down to provide better drainage of water.



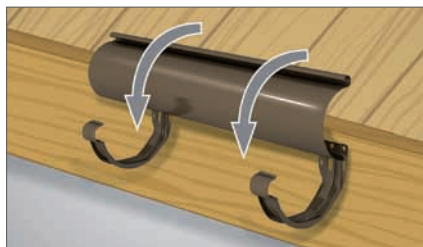
8. Position the drop outlet on the gutter. Insert the front edge of the drop outlet onto the front gutter fold. Then, turn the drop outlet up until its rear edge snaps onto the rear gutter edge fold.



9a. Mount a universal end cap by sliding the back of the end cap under the rear gutter edge fold, turning it down until its front edge snaps into the front gutter edge fold. Bend the rear end cap plate onto the gutter. It is recommended to additionally seal the end cap using roofing sealant.



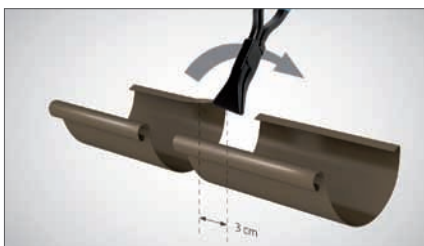
9b. Cut off the unnecessary upper part of the end cap (best to do so before the installation, knowing whether the end cap will be on a right or left one).



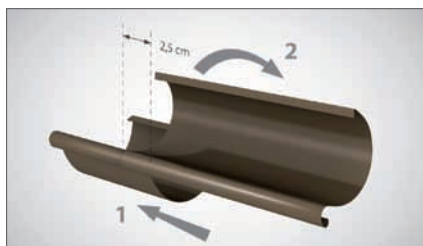
10. Install the gutters in the hangers. Insert the rear edge fold of the gutter onto the rear folds of the hangers. Turn the gutter down until it snaps on the hangers.



11a. To join gutter sections and a gutter with gutter corners, use gutter connectors with EPDM seal.



11b. We recommend installing gutters with an overlap (approx. 2.5 cm) in the waterfall direction of the gutter. For this purpose, unbend the rear fold of the gutter installed on the length of approx. 3 cm.



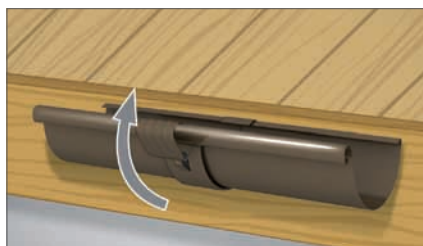
11c. Insert the front fold of the gutter to-be-installed into the front fold of the gutter installed to a depth of 2.5 cm, turn this gutter to have it placed inside the gutter installed.



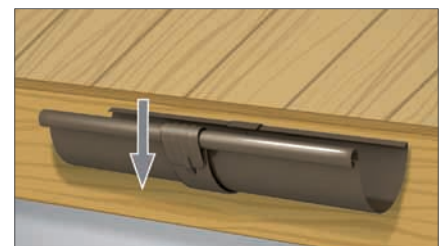
11d. Bend the rear fold that was unbent earlier. Before connecting the gutters, insert a gutter connector onto the gutter installed - it is difficult to insert it onto gutters already connected.



12a. The connection of gutters is sealed by installing gutter connectors on the gutter overlap. Engage the connector onto the rear edges of the elements connected, turn it up.



12b. Put the clamp on the front folds of elements connected, bend the protecting tab.



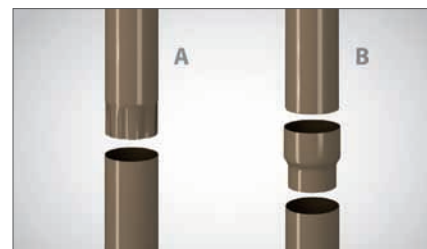
12c. Snap the latch and bend the protecting plate.



13. Similarly – as for the gutter connector – it is recommended to install a gutter corner. In this case, the gutters are inserted into the corner and the connections are sealed with gutter connectors. When mounting corners, it is recommended to additionally seal the overlap with a thin layer of universal roofing sealant.



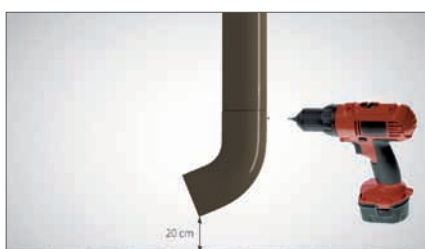
14. In the case of a protruding eaves, make the connection of a drop outlet with a downspout using two elbows and a downspout section.



15. Downspouts are factory-tapered, so they can be joined without buying pipe couplings. These couplings, however, are available in our offer and may be needed to connect shorter sections of downspouts after cutting them off. It is also possible to taper a downspout using a crimper.



16. A downspout is fastened to the wall with a band and screws of different lengths. The maximum distance between fastening bands – 2 m. It is recommended to fasten each downspout to the wall using a minimum of two bands. Install the first band approx. 15 cm below the downspout elbow.



17. Use an elbow as a downspout shoe. Fasten it mechanically to the downspout from its rear side, for example, with a screw. The height of the elbow above ground level shall be minimum of 20 cm.

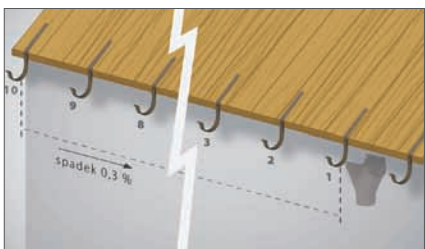


18. The downspout can also be introduced into a plastic catch basin, fitted with a strainer and anti-odour flap, to drain rainwater into a storm sewer.

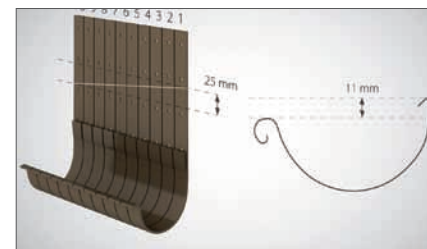


19. For collecting the rainwater for its further use, a downspout inverter can be mounted.

#### PREPARATION OF STRAIGHT HANGERS FOR INSTALLATION:



1. Calculate the number of gutter hangers required for gutter installation (for the section from the uppermost hanger to the bottommost hanger). Take into account that the hangers at corners are installed at the same level.



2. Mark the places of bending hangers. Number hangers counted in the para. 1 and then mark the slope value (the slope value for 10 hangers is approx. 25 mm). This marked slope line determines the places of bending the hangers. The hanger No. 1 is the lowermost one while the hanger No. 10 is the bottommost one. Please note that the front gutter fold is below the rear fold by approx. 11 mm.

#### PACKAGING

Gutter fittings and pipes are packed in cardboard boxes. Gutters and downspouts are packed individually in plastic bags. Gutters are tied in bundles of 5 pieces. Packages are prepared for shipping on pallets.

#### INSTRUCTIONS FOR STORAGE AND TRANSPORTATION OF StalGam SYSTEMS

Avoid storing coated metal sheet gutters and downspouts on the outside. If this is unavoidable, it is permissible to temporarily store the products in their original packaging in the open air. In this case, it is necessary to cover the products (preferably waterproof tarpaulin) so as to ensure free access of air to the stored products. The maximum height of storing products is 1 m.

Store products on a flat surface so that the first layer of products adheres to the bedding over the entire length.

Elements packed in cardboard boxes should be stored under shelter, in a dry places protecting these products against the influence of rainfall and moisture.

Gutters and downspouts shall be stored and transported in a horizontal position. Products shall be secured against slipping. Special attention should be paid to the place of contact (advisable to use cardboard dividers). Products transported in boxes under a roof. Do not allow the local crushing elements and their throwing. When unloading, do not drag on the ground of the stored product or another, to avoid damaging them.

#### APPROVALS AND PRODUCT CERTIFICATIONS

GUTTER SYSTEMS GAMRAT STALGAM:

- Polish Standard PN-EN 612:2006; PN EN 1462:2006
- Declaration of Conformity

#### NOTES

1. On the slippery, steep roofs, and when it is not possible to mount the gutter below the plane which is an extension of the roof, snow barriers shall be used.
2. Using components provided by other manufacturers may cause deterioration of the functional characteristics of the system.
3. The warranty covers only genuine products offered by GAMRAT SA.