Safe through the winter with a snow guard system

S-5!® ColorGard® and RoofTech single or double pipe holders

In regions with high expected snowfall, on steeply pitched roofs, or in front of solar panels, an **extra-high snow guard** is necessary and often locally mandated to reliably keep snow on the roof. The robust RoofTech double-tube bracket made of aluminum, together with two 32/2 mm round tubes, provides a permanently secure snow guard system.

The extremely stable double-tube holder made of aluminium is mounted on two S-5!® mini clamps.
This often allows significantly higher loads to be absorbed than with conventional twin-tube systems.
Snow guard systems. Depending on the seam type, the upper pipe sits 14-18 cm above the roof covering, and the lower pipe rests optimally directly on the seam. Please note: Due to leverage, double-pipe snow guard systems should only be used in conjunction with snow guard systems positioned above them.

E-Mini **S-Mini** **Z-Mini** **R465-Mini** **B-Mini** **N-Mini** **N1.5-Mini**

The RoofTech double tube holder made of aluminum can be mounted on all S-5!® Mini clamps, including B-Mini for copper roofs.

Assembly instructions for the double tube holder type S

- Pre-assemble the double tube holder loosely onto two S-5!® mini clamps suitable for the seam type using M8x16 stainless steel screws with serrations through the two elongated holes.
- Next, correctly position the double pipe holders next to each other on the seams using the S-5!® mini clamps, then insert standard 32/2mm snow guard pipes through the holes at the top and bottom and align the row of snow guards.
- The grub screws of the S-5!® mini clamps must be tightened to the fold with a torque of 15-17 Nm, according to the respective S-5!® clamp mounting instructions. For some types of folds, mounting must not be done on the clips or holders! Please also refer to the mounting instructions for the respective S-5!® clamps.
- The double tube holder is then finally screwed onto the two S-5!® mini clamps using M8x16 stainless steel screws with serrated locking teeth and a torque of 30Nm.
- To prevent lateral displacement, each pipe must be fixed to one of the double pipe holders with a screw through the screw tab.
- Sufficient spacing must be provided between the pipes (max. 3m long) in a row to allow for thermally induced changes in pipe length.
- To prevent ice or snow sheets from sliding off, additional ice stoppers suitable for the seam (1 to 2 per section, 30cm spacing) should be installed between the lower pipe and the roof membrane (available as an option).

Please also refer to our general planning and installation instructions for snow guards. These and further information, including all installation instructions, can be found on our website www.rooftech.de or upon request.

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Please note the following in general:

- RoofTech and S-5!® – Metal Roof Innovations Ltd. generally recommend that the planned installation and the dimensioning of the snow guard be checked by a qualified professional who is responsible for the correct application of the relevant building codes and regulations, standards, technical rules and local factors, snow and wind loads, the loads of the installation, the statics and assembly as well as the planning and construction of and on metal roofs.
- Factors determining the dimensioning and number of snow guard rows and their fastening on standing seam roofs include: the building's location, snow load zone, elevation of the terrain above sea level, roof shape, roof pitch, rafter length or panel length, eaves length, seam spacing or panel width, and the holding forces of the respective standing seam clamps.
- As part of their duty to ensure public safety, homeowners are liable for roof and ice avalanches and must therefore ensure their roof is properly secured. The decision regarding the installation of a snow guard system ultimately rests with the building owner or homeowner. Any existing official regulations must be observed. The snow guard system is designed to prevent the shearing effect and the sliding of snow and ice from the roof by means of one or more rows of snow guards and ice stoppers.
- In Germany, the design and dimensioning of snow guard systems must be carried out professionally in advance according to DIN EN 1991-Eurocode 1-3: “Actions on structures – Snow loads” (in Austria according to ÖNORM B 1991-1-3:2006-04-01, in Switzerland SIA 261:2003 applies). According to the stipulations in the respective state building codes, local building regulations, and the homeowner's duty of care for public safety, snow guard systems are required for roofs adjacent to traffic areas, above entrances, etc. DIN 1991-1-3 and the roofing trade rules of the German Roofing Contractors Association (ZVDH) oblige roofers to provide structural analyses for the snow guard system.
- When using snow guards and clamps, it must be ensured that the forces transferred from the snow guard and clamp to the roof seam can be absorbed by both the guard and the supporting structure. Installing a system on an existing roof without first verifying its structural stability is a violation of existing law! Sufficient holding force of the roof covering on the supporting or substructure must always be guaranteed. This must be verified on-site. In cases of doubt, a structural engineer should be consulted to determine the load and its distribution. The average amount of snowfall under local conditions, as well as the type and pitch of the roof, determine the design, dimensioning, arrangement, and fastening of the snow guard system. This involves calculating the resistance of snow guard systems to sliding snow masses and calculating the static load caused by the snow load. The snow load calculation must not only be based on regional regulations, but it must also be considered whether an increase in the load assumption is necessary.
- For metal roofs, multi-row snow guards are preferably used, which are attached to the longitudinal seams of the panels with clamps. For barrel roofs, a closer spacing of the snow guard rows is necessary to prevent the snow layer from being pushed over the top. Due to the leverage effect, double-pipe snow guard rows should only be used in conjunction with snow guard rows positioned above them.
- The lowest row of snow guards should generally be installed approximately 20 to 25 cm from the eaves. If additional rows of snow guards are planned, the roof area should be divided into roughly equal sections to ensure even weight distribution and optimal effectiveness.
- To prevent ice or snow sheets from sliding off, additional ice stoppers (1 to 2 per section, spaced approximately 30 cm apart) should be installed between the pipe and the roof membrane. The correct ice stopper depends on the distance between the metal roof and the bottom edge of the pipe, the load it will bear, and the material.
- Each pipe must be fixed to a bracket to prevent lateral displacement. Sufficient spacing must be provided between pipes (max. 3m long) in a row to allow for thermally induced changes in length.
- Installation of our products should only be carried out by qualified professionals and specialist companies with the necessary installation skills and experience working on roofs. During installation, the warranties of all trades and the roof itself, as well as all regulations for working on roofs (e.g., the use of fall protection systems, safety catches above an eave height of 3 meters, accident prevention measures, building regulations, etc.) must be observed. Throughout the entire installation process, it must be ensured that at least one copy of the relevant installation instructions (including those for the S-5 clamps) is available to all participants on the construction site and is carefully followed during installation.
- We accept no liability for defects and damages resulting from failure to follow our assembly instructions, from the installation or assembly of our products with competitor components, or from the use and combination of other components not purchased from us. In such cases, the warranty is excluded.
- The installation company is responsible for the mechanical durability and watertightness of the installed products on the building envelope. The material properties of the respective metals, their combination with one another, as well as the processing instructions of the roofing material manufacturers must be observed. The thermally induced expansion and contraction of the metal roofing must not be impeded.
- The snow guard systems and the S-5! clamps are not suitable as fall protection or fall arrest systems. The S-5! clamps may only be used in a certified and approved fall arrest system. The respective system provider for fall arrest systems is responsible for this and must provide proof of certification.
- The information, drawings, and photographs provided in our documents, on our website, and on the S-5! website serve to illustrate individual details and are merely recommendations. RoofTech GmbH and S-5!® - Metal Roof Innovations Ltd. assume no liability for them.
- The installation instructions do not relieve the installing company of the responsibility to clarify the suitability of the products and their application to the specific building, taking local conditions into account. RoofTech GmbH, S-5!® Metal Roof Innovations Ltd., and the other manufacturers of our products generally assume no responsibility for the suitability, processing, or correct use of the products.

Please feel free to request further information and assembly instructions from us.

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