The original S-5!® Clamps

Tested Holding Strength

To provide customers with high quality clamps combined with safety, S-5! tested the clamps intensively on a huge number of panels from many different metal producers. One reason for the S-5! industry leadership is the extensive and rigorous testing to ensure safety and maintain the structural integrity of the roof. S-5! use a third-party A2LA accredited lab—the highest-regarded in the industry—and follow strict ASTM standards.

For the European market the group of the **E-Clamps** for double folded standing seams and the group of **Z-Clamps** for the round-bulb seam profiles had been tested and **approved by the DIBt** (German Center of Competence for Civil Engineering – Authority of the German Government). **DIBt abZ aBG Z-14.4-719 - valid until May 2027.**

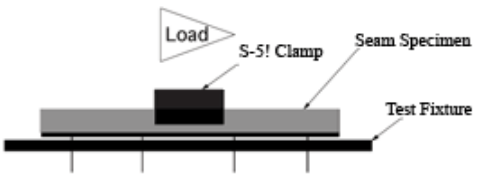
Therefor the S-5! E- and Z-Clamps have been completely tested in the required four load directions, and unlike other seam clamps, not only the clamps in connection with the seam, but in connection with the entire roof structure, including the standing seam profiles, the clips or holders and their attachment to the supporting structure!

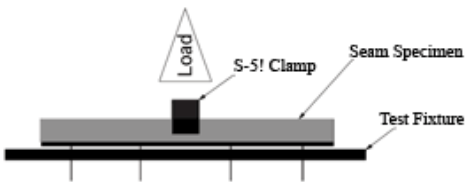
S-5!® has developed innovative clamps and brackets for various international metal roof profiles.

Using the S-5! Clamps and the load table please notice:

Mounting the clamps take care that the set screws are tightened with the right screw tension of 15-17 Nm on materials which are not steel. Please make sure that the load coming into the clamp will be taken by the structure of the roof. When planning the project the calculated loads should not only include wind, snow and planned use. The makers and supplier of S-5!® clamps make no representations with respect to these variables. It is the responsibility of the user to verify this information, or seek assistance from a qualified design professional or stress analyst, if necessary. Please note the installation instructions under: www.rooftech.de or www.s-5.com.

US-Tests made with load pulling parallel (shear) to seam and with load pulling normal (tensile) to seam:





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Selection of Load Test Results of S-5!® Clamps

In contrast to plagiarism and conventional seam clamps, only the original S-5!® Clamps are all multiple tested on many different materials and profiles by a third-party accredited US-lab. All S-5!® E and Z-Clamps were also tested and approved by the German building authorities.

Below is a first selection of the holding strengths of the S-5!® clamps tested by US testing institutes on seam and material types commonly used in Europe. The values of the E-Mini are identical for the E-Mini-FL.
This type of test tests the clamp itself and the connection of the clamp to the seam/profile under test conditions.

S-5!® Clamp	Metal Roof Producer	Roof panel	Material	Material Thicknes s	Setscrew Tension	Test Result	Test Method Scheer = Parallel Zug = Normal	Allowable Load *
E-Clamp	Corus	Falzinc	Aluminium	0,7 mm	13,0 Nm	5,14 kN	Scher	2,57 kN
		Titansilber	Aluminium	0,7 mm	13,0 Nm	4,22 kN	Scher	2,11 kN
	Novelis	Falzonal	Aluminium	0,7 mm	13,0 Nm	5,34 kN	Scher	2,67 kN
	Haushaut	DF-Falz	Aluminium	0,7mm	13,0 Nm	4,91 kN	Scher	2,46 kN
	Prefa	Prefalz	Aluminium	0,7 mm	13,0 Nm	4,65 kN	Scher	2,33 kN
	Rheinzink	Rheinzink Doppelstehfalz	Titanzink	0,7 mm	13,0 Nm	5,54 kN	Scher	2,77 kN
		Rheinzink Doppelstehfalz	Titanzink	0,8 mm	13,0 Nm	7,44 kN	Scher	3,72 kN
	NedZink	NATUREL	Titanzink	0,7mm	13,0 Nm	6,05 kN	Scher	3,02 kN
	Umicore	VM ZINC	Titanzink	0,7 mm	13,0 Nm	6,58 kN	Scher	3,29 kN
		VM ZINC	Titanzink	0,8 mm	13,0 Nm	7,25 kN	Scher	3,63 kN
	Zintek	zintek Doppelstehfalz	Titanzink	0,7 mm	13,0 Nm	5,27 kN	Scher	2,67 kN
	Roofinox	ASP ML-100	Edelstahl	0,5 mm	13,0 Nm	6,89 kN	Scher	3,44 kN
	Uginox	Uginox FTE	Edelstahl	0,5 mm	13,0 Nm	5,84 kN	Scher	2,92 kN
E-Mini	Corus	Falzinc	Aluminium	0,7 mm	13,0 Nm	4,44 kN	Scher	2,22 kN
		Titansilber	Aluminium	0,7 mm	13,0 Nm	4,12 kN	Scher	2,06 kN
	Haushaut	DF-Falz	Aluminium	0,7 mm	13,0 Nm	3,75 kN	Zug	1,25 kN
	Novelis	Falzonal	Aluminium	0,7 mm	13,0 Nm	3,82 kN	Scher	1,91 kN
		Falzonal	Aluminium	0,7 mm	13,0 Nm	3,89 kN	Zug	1,30 kN
	Prefa	Prefalz	Aluminium	0,7 mm	13,0 Nm	3,46 kN	Scher	1,73 kN
		Prefalz	Aluminium	0,7 mm	13,0 Nm	3,82 kN	Zug	1,27 kN
	Rheinzink	Rheinzink Doppelstehfalz	Titanzink	0,7 mm	13,0 Nm	4,53 kN	Scher	2,26 kN
		Rheinzink Doppelstehfalz	Titanzink	0,7 mm	13,0 Nm	5,38 kN	Zug	1,79 kN
		Rheinzink Doppelstehfalz	Titanzink	0,8 mm	13,0 Nm	4,86 kN	Scher	2,43 kN
	NedZink	NATUREL	Titanzink	0,7mm	13,0 Nm	5,44 kN	Zug	1,81 kN
	Umicore	VM ZINC	Titanzink	0,7 mm	13,0 Nm	5,24 kN	Scher	2,62 kN
		VM ZINC	Titanzink	0,7 mm	13,0 Nm	4,90 kN	Zug	1,63 kN
	Zintek	zintek Doppelstehfalz	Titanzink	0,8 mm	13,0 Nm	6,19 kN	Zug	2,06 kN
	Roofinox	ASP ML-100	Edelstahl	0,5 mm	13,0 Nm	8,30 kN	Zug	2,77 kN
	Uginox	Uginox FTE	Edelstahl	0,5 mm	13,0 Nm	7,40 kN	Zug	2,46 kN
S-Clamp	Fischer	Kliptec Snapfalz	Stahl	0,82 mm	17,0 Nm	8,76 kN	Scher	4,38 kN
	Jacobi	Jacobi-Snapfalz 38	Stahl	0,75 mm	17,0 Nm	7,90 kN	Scher	3,95 kN
	Privé	Sylinov No.3 Snapfalz	Stahl	0,6 mm	17,0 Nm	4,21 kN	Zug	2,10 kN
	NeZink	Winkelstehfalz 24mm	Titanzink	0,7 mm	13,0 Nm	5,29 kN	Scher	2,65 kN
	Haushaut	Winkelstehfalz 25mm	Aluminium	0,7 mm	13,0 Nm	4,89 kN	Scher	2,45 kN
	Protectum	RS50-PS Winkelstehfalz	Edelstahl	0,5 mm	13,0 Nm	6,08 kN	Scher	3,04 kN
S-Mini	Fischer	Kliptec Snapfalz	Stahl	0,82 mm	17,0 Nm	5,51 kN	Zug	1,80 kN
	Jacobi	Jacobifalz 38 Snapfalz	Stahl	0,75 mm	17,0 Nm	6,74 kN	Zug	2,25 kN
	Privé	Sylinov No.3 Snapfalz	Stahl	0,6 mm	17,0 Nm	3,50 kN	Zug	1,17 kN
	NedZink	Winkelstehfalz 24mm	Titanzink	0,7 mm	13,0 Nm	3,16 kN	Zug	1,05 kN
	Haushaut	Winkelstehfalz 25mm	Aluminium	0,7 mm	13,0 Nm	2,35 kN	Zug	0,78 kN
	Protectum	RS50-PS Winkelstehfalz	Edelstahl	0,5 mm	13,0 Nm	5,06 kN	Zug	1,69 kN

* Allowable loads are listed utilizing a default Factor of Safety: 2,0 for shear/parallel load and 3,0 for tensile/normal load.

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Selection of Load Test Results of S-5!® Clamps

Below is a second selection of the holding strengths of the S-5!® clamps tested by US testing institutes on seam and material types commonly used in Europe. The values of the Z-Mini are identical for the Z-Mini-FL. This type of test tests the clamp itself and the connection of the clamp to the seam/profile under test conditions.

S-5!® Clamp	Metal Roof Producer	Roof panel	Material	Material Thickness	Setscrew Tension	Test Result	Test Method Scheer = Parallel Zug = Normal	Allowable Load *
Z-Clamp	Aluform	Alufalz 65	Aluminium	0,8 mm	13,0 Nm	7,98 kN	Scher	3,99 kN
		Alufalz 65	Aluminium	1,0 mm	13,0 Nm	10,8 kN	Scher	5,42 kN
		Interfalz 65	Aluminium	0,8 mm	13,0 Nm	8,78 kN	Scher	4,39 kN
		Interfalz 65	Aluminium	1,0 mm	13,0 Nm	10,9 kN	Scher	5,46 kN
	Bemo	Bemo Roof	Aluminium	0,8 mm	13,0 Nm	11,8 kN	Scher	5,88 kN
		Bemo Roof	Aluminium	1,0 mm	13,0 Nm	10,9 kN	Scher	5,47 kN
		Bemo Roof	Stahl	0,6 mm	17,0 Nm	7,86 kN	Scher	3,93 kN
	Corus	Kal Zip	Aluminium	0,8 mm	13,0 Nm	11,8 kN	Scher	5,88 kN
		Kal Zip	Aluminium	1,0 mm	13,0 Nm	10,9 kN	Scher	5,47 kN
		Kal Zip	Stahl	0,6 mm	17,0 Nm	7,86 kN	Scher	3,93 kN
Z-Mini	Aluform	Alufalz 65	Aluminium	0,8 mm	13,0 Nm	5,82 kN	Scher	2,91 kN
		Alufalz 65	Aluminium	0,8 mm	13,0 Nm	3,56 kN	Zug	1,19 kN
		Interfalz 65	Aluminium	0,8 mm	13,0 Nm	4,13 kN	Zug	1,38 kN
		Interfalz 65	Aluminium	1,0 mm	13,0 Nm	6,59 kN	Zug	2,20 kN
	Bemo	Bemo Roof	Aluminium	1,0 mm	13,0 Nm	8,22 kN	Scher	4,11 kN
		Bemo Roof	Aluminium	1,0 mm	13,0 Nm	2,76 kN	Zug	0,92 kN
	Corus	Kalzip 65	Aluminium	0,9 mm	13,0 Nm	7,64 kN	Scher	3,82 kN
		Kalzip 65	Aluminium	0,9 mm	13,0 Nm	4,52 kN	Zug	1,51 kN
	Kingspan	KingZip	Stahl	0,5 mm	17,0 Nm	4,54 kN	Zug	1,51 kN
		KingZip	Aluminium	0,9 mm	13,0 Nm	4,62 kN	Zug	1,54 kN
B-Clamp	KME	TECU 25mm	Kupfer	0,7 mm	13,0 Nm	5,67 kN	Scher	2,84 kN
B-Mini	KME	TECU 25mm	Kupfer	0,7 mm	13,0 Nm	4,45 kN	Zug	1,48 kN
N-Mini	Lysaght	ENSEAM 25mm	Stahl	0,51 mm	13,0 Nm	5,30 kN	Zug	1,77 kN
	McElroy Metal	Meridian	Stahl	0,40 mm	13,0 Nm	3,21 kN	Zug	1,07 kN
N1.5-Clamp	SCH Holland	Nailstrip Klikfels 35-500	Stahl	0,56 mm	17,0 Nm	5,24 kN	Scher	2,62 kN
N1.5-Mini	SCH Holland	Nailstrip Klikfels 35-500	Stahl	0,56 mm	17,0 Nm	5,12 kN	Zug	1,71 kN
	New Tech Mach.	Nailstrip SS40SL	Stahl	0,51 mm	17,0 Nm	6,07 kN	Zug	2,02 kN
R465-Mini	Zambelli	Rib-Roof 465	Aluminium	0,7 mm	13,0 Nm	4,07 kN	Scher	2,04 kN
		Rib-Roof 465	Aluminium	0,7 mm	13,0 Nm	4,088 kN	Zug	1,63 kN
K-Grip-Mini + GMX10 Insert	Domico	Domitec	Aluminium	1,0mm	13,0 Nm	2,32kN	Zug	0,77 kN
	Safintra	Saflock 410	Stahl	0,58 mm	17,0 Nm	3,36 kN	Zug	1,12 kN

* Allowable loads are listed utilizing a default Factor of Safety: 2,0 for shear/parallel load and 3,0 for tensile/normal load.

The result of all test was that the weak points are usually not the S-5! Clamps but the roofing and its fastening. Any loads imposed on the S-5! clamp will be transferred to the panels. Panel attachment and building structure must also be sufficient to carry these loads. It is the responsibility of the user and installer to verify this information, or seek assistance from a qualified design professional or stress analyst, if necessary.

RoofTech GmbH and S-5!® - Metal Roof Innovations Ltd. recommend in principle that the planned installation, PV system, snow guard system, etc. should be verified by a qualified professional who is responsible for the snow and wind loads, the additional loads from the installations attached to the clamps, the statics and assembly as well as the planning and construction of and on metal roofs. RoofTech GmbH and S-5!® - Metal Roof Innovations Ltd. assume no responsibility and liability for assembly, suitability and applications.

We would also be pleased to send you the respective installation instructions and the requested information. We look forward to your message or call.

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RoofTech – Product Information:

S-5!® Z- and E- Clamps have the official technical DIBt approval

All components in Germany related to fixing solar products for PV installations needs to carry a German approval by the DIBt (German Center of Competence for Civil Engineering - Authority of the German Government). Since March 2017 **the S-5-Z- and S-5-E- Clamps have the national technical approval by the DIBt: abZ aBG No. Z-14.4-719 - valid until May 2027.**

The S-5!® Z-clamp family have the national technical approval for the round „bulb“ seams for all these international operating producer:

- Kalzip-Aluminium-Stehfalzprofil from **Kalzip**
- BEMO-FLAT-ROOF from **Bemo**
- ALUFALZ and FALZ-RIPP from **Aluform**

The S-5-Z-Clamp, S-5-Z-Mini and S-5-Z-Mini-FL are currently the only clamps on the market with an approval for all these three round bulb seam profiles.

Please note this information from Kalzip:
Kalzip requires “an official approval for assembly with Kalzip” when using clamps from other manufacturers. For the installation of solar systems on Kalzip roofs, only tested system accessories approved for this purpose may be used. **Non-approved components invalidate the Kalzip warranty!**

Due to the approval by the DIBt, such proof is given for the S-5!® Z clamp family and they may therefore can used for installations on such Kalzip roofs.

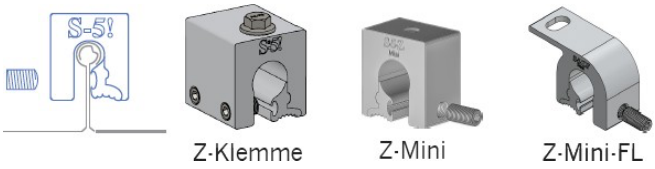
The S-5!® E-Clamp family was tested on the Rheinzink double folded seam system and currently the only clamps on the market with an official approval for this double-folded standing seam roof.

Please note this information from Rheinzink:
Rheinzink basically only recommends the use of the S-5! Clamps, as only these have the official approval in connection with their roofs and thus offer the only possibility that a structural engineer can provide a static proof for the entire system.

Should the tradesman or planner nevertheless work with other clamps and this causes damage to the roof, then of course the Rheinzink material warranty and system warranty no longer apply.

All S-5!® E and Z clamps have been completely tested in the required four load directions, and unlike other seam clamps, not only the clamps in connection with the seam, but in connection with the entire roof structure, including the standing seam profiles, the clips or holders and their attachment to the supporting structure!

The extensive test procedure was made by the well-known institute KIT (Karlsruhe Institute of Technology).



The result of all tests was, with very few exceptions, that the load capacity of each individual S-5!® clamp is stronger than the load capacity of the roof panels or profiled sheets and their attachment to the supporting structure. This applies not only to the Clamps with two setscrews but also to the S-5!® Mini clamps with one setscrew.
The load- bearing capacity values from this building approval may be used for static calculations.

Please don’t hesitate to contact us for further information and the test results.

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Our S-5!® Clamp Assortment

the perfect fastening base for many different applications

The S-5!® Clamps with two set screws, M8 thread(s) on the top and one M8x16 stainless steel screw with locking serration, are used for very high loads such as e.g. for single fastenings, fall protection and the S-5!® ColorGard snow guard system.

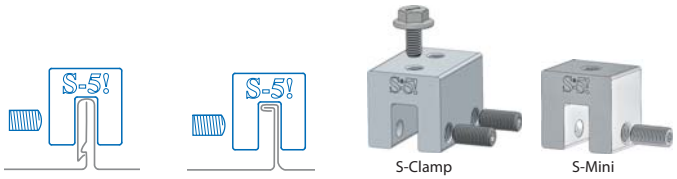
The S-5!® Minis with one set screw and M8 thread or with a flange and slotted hole (FL) are used in applications where rigid objects, such as rails, are to be fixed to the seams with several clamps.

S-5!® E-Clamps for Double Folded Seams

The E-clamps made of Aluminium have an opening slot of 7mm and offer mounting solutions on double standing seam roofs.
Official approved by the DIBt.: Z-14.4-719.

S-5!® S-Clamps for Snap Lock and Angle Seams

With a bigger opening slot of 14mm the S-Clamps are extremely versatile for angle seams and a big number of industrial seams such as Snap-Lock or Snap-together profiles from Fischer-Kliptec, Schlebach, Prive-Stylinov, Ruukki or similar.

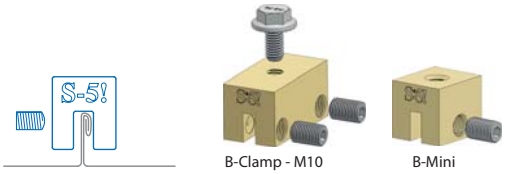


S-5!® Z-Clamps for Round Bulb Seams

Z-Clamps are specially developed to fit profiles having round "bulb" seams with a max. 22mm diameter such as profiles of Kalzip®, Bemo®, Aluform, Euroseam® or Kingspan. **Official approved by the DIBt.: Z-14.4-719.**

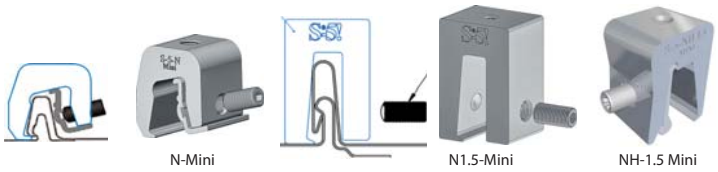
S-5!® B-Clamps for Copper Roofs

The B-clamps with an opening slot of 6mm are the perfect choice for copper roofs with double standing seam. The B-clamps are **made of Brass** and thus enable material- compatible installations on copper roofs.



S-5!® N-Mini and N1.5-Mini Clamps for Nail Strip Seams

The N-Mini clamp is suitable for 1 inch (25mm) high and the N1.5-Mini clamp and NH1.5-Mini clamp for 1.5 inch (38mm) high Nail-strip profiles such as those from Schlebach or similar.



The S-5!® H-Mini for larger Horizontal Profiles

The H-Mini clamp is developed for different types of larger horizontal seams up to 32mm width.

The S-5!® R465 Mini Clamp

is specially designed for the profiles Zambelli RIB-Roof 465, Domico GBS and similar.The exact fit with the set screws on both sides are the basis for the high holding forces.

All not stocked S-5!® products can be imported from S-5!, USA, after costumer request – even in small quantities and in short time with air freight. If you would like a quote, further information or advice on a project, please do not hesitate to contact us.

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