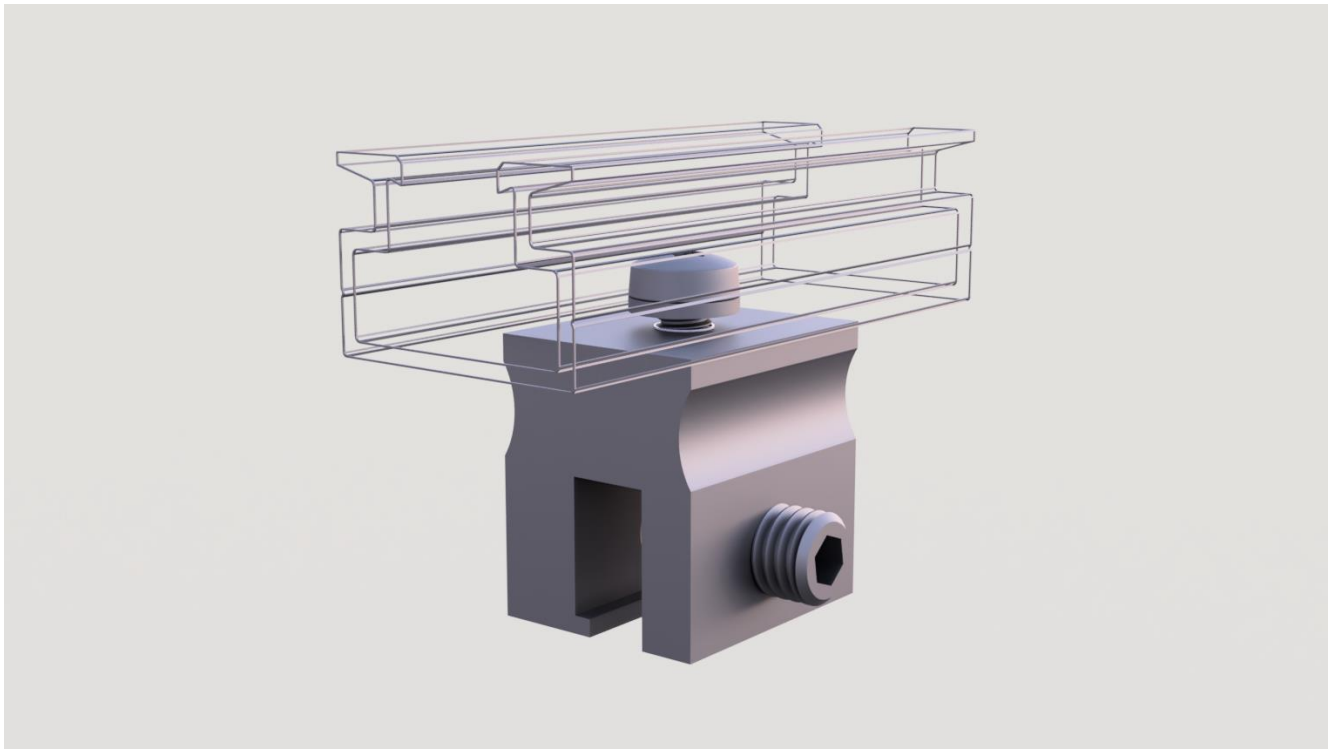
Solar systems from Schweizer

PV Mounting System MSP-PR and MSP-PR Inlay
ETA (European Technical Assessment) sheet-metal seam clamp

The following ETA (European Technical Assessment) refers exclusively to the lower part of the sheet-metal seam clamp, item nb. 23062.



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Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

European Technical Assessment ETA-25/0540 of 2025/07/03

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S	
Trade name of the construction product:	CF:x Clamps
Product family to which the above construction product belongs:	Clamps for standing seam roof profiles
Manufacturer:	Solid-C GmbH Alemannenstraβe 3 DE-71296 Heimsheim Telephone: +49 7033 3059956 www.solid-c.de
Manufacturing plant:	Solid-C GmbH Manufactoring Plants
This European Technical Assessment contains:	28 pages including 17 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 220240-00-0401: Clamps for standing seam roof profiles
This version replaces:	-

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

CF:x Clamps are clamps for standing seam roof profiles.

The fastening takes place without penetration via clamping effect. The clamp itself can be in one (Figure 1) or two pieces (Figure 2), the former one requiring a recess to put it on the seam.

In the case of one-piece clamps with recess, the clamping force is produced either between one or more bolts or set screws and the inner surface of the recess or bolts or set screws screwed in from the opposite side.

In the case of two-piece clamps, the clamping force is produced by tensioning the two parts against each other via one or more bolts or set screws.

While the clamps are made from aluminium (extruded profile cut to length) or stainless steel (folding or deep drawing). The bolts or set screws are made from stainless steel, grade A2.

More information in the annexes of this ETA.

The clamps are subjected to static and quasi-static (cyclic wind) loading, but no dynamic loading, for example from anchor devices for fastening personal fall protection systems. The forces may act as uplift forces, downward forces or in the plane of the roof (roof thrust).

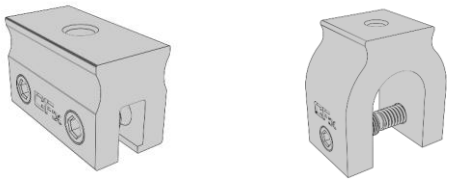


Figure 1: One-piece clamps

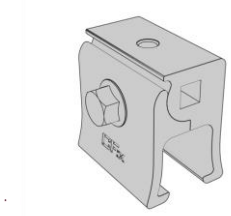


Figure 2: Two-piece clamp

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The clamps are intended for the systematic load-transferring connection of add-on parts (like walkways, railings, installations or supporting structures for PV modules) to structural roof-coverings provided by factory-made or hand-crafted standing seam profiles. The clamps are fastened to the seam of these profiles.

Clamps and add-on superstructure form a redundant system that can redistribute the load in case of slipping of a clamp.

The bending resistance of the standing seam profile under the concentrated load from the clamps is not the subject of this ETA.

More information in table, section 3: “Performance of the product and references to the methods used for its assessment”.

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

The standing seam profile, its geometry, material, material-properties and minimum nominal thickness of the sheeting as well as coatings, if applicable, are detailed in the annexes of this ETA.

It is assumed that the product will be installed according to the manufacturer’s instructions or (in absence of such instructions) according to the usual practice of the building professionals.

The provisions made in this European Technical Assessment are based on an assumed working life of the clamps of 25 years when installed in the works, provided that the clamps are subject to appropriate installation.

The indications given on the working life of the construction cannot be interpreted as a guarantee given by the manufacturer or the Assessment Body but are to be regarded only as a means for expressing the expected economically reasonable working life of the product.

3 Performance of the product and references to the methods used for its assessment.

Characteristic	Assessment of characteristic
3.1 Mechanical resistance and stability (BWR 1)	
Characteristic pull-off resistance	See information in annex 3-17
Characteristic seam crippling resistance	See information in annex 3-17
Characteristic slip resistance	See information in annex 3-17
3.2 Safety in case of fire (BWR 2)	
Reaction to fire	The clamps are classified as **Euroclass A1** in accordance with EN 13501-1 and Delegated regulation 2016/364, in accordance with the Commission Decision 96/603/EC, as amended by Commission Decisions 2000/605/EC and 2003/424/EC, without the need for testing.
3.7 Durability	
Durability	The clamps are manufactured of aluminium: EN AW-6063-T66: Durability rating B The bolts or set screws are made from stainless steel A2-70: Corrosion resistance class II

3.8 Methods of verification

The assessment of the performance of CF:x Clamps in relation to the applicable BWR's has been made in accordance with the European Assessment Document (EAD) no. EAD 220240-00-0401: Clamps for standing seam roof profiles.

The CF:x Clamps are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

3.9 General aspects related to the fitness for use of the product.

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base.

4.1 AVCP system

According to the decision 1998/214/EC, amended by 2001/596/EC, the system(s) of assessment and verification of constancy of performance (see Annex III to Regulation (EU) No 305/2011) is **2+**.

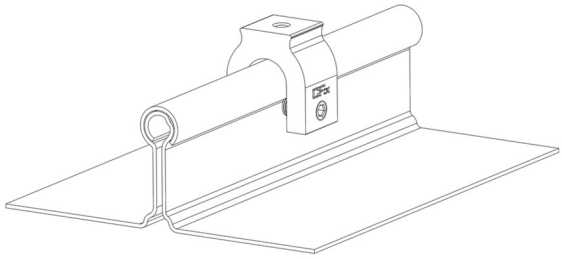
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD.

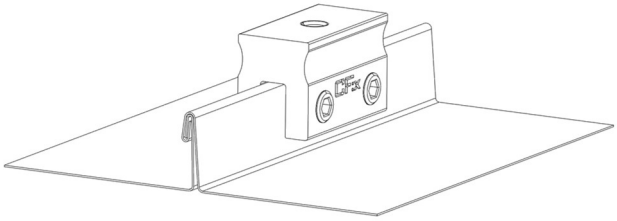
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2025-07-03 by

Thomas Bruun
Managing Director, ETA-Danmark

Examples of the configuration of the connection





Materials and dimensions

Materials and dimensions relevant for design are given in the Annexes of the clamps:

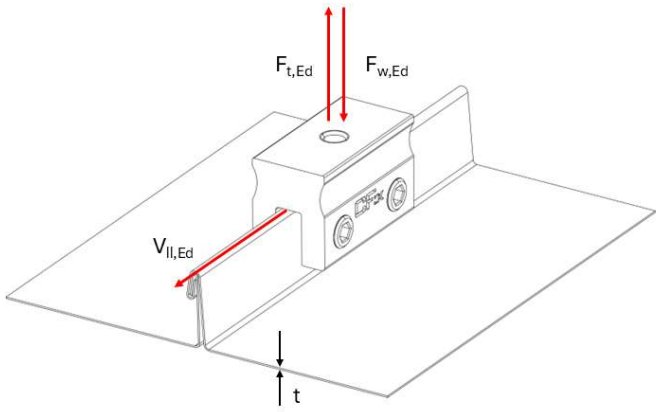
Clamp	Material of the clamp body and of the set-screw or of the bolt
Profile	Material of the standing seam profile
t_N	Nominal thickness of the standing seam profile
$M_{t,nom}$	Tightening torque

Performance characteristics

The design relevant performance characteristics of a connection are indicated in the Annexes of the fastening screws. The design relevant performance characteristics of a connection are indicated in the Annexes of the clamps.

$F_{t,Rk}$	Characteristic cyclic pull-off resistance
$R_{w,Rk}$	Characteristic seam crippling resistance
$V_{\|\|,Rk}$	Characteristic slip resistance

Forces acting on a connection



Design values

The design values of the resistance of a connection have to be determined as following:

$F_{t,Rd}$	Design cyclic pull-off resistance
$R_{w,Rd}$	Design seam crippling resistance
$V_{\|\|,Rd}$	Design slip resistance
γ_M	Partial factor

The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993.

The design concept and the resistance of the standing seam profiles under individual point loads are not the subject of the ETA.

Special conditions

In case of combined loading by tensile and shear forces the following interaction equation should be taken into account:

$$\frac{\boldsymbol{F_{t,Ed}}}{\boldsymbol{F_{t,Rd}}} + \frac{\boldsymbol{V_{||,Ed}}}{\boldsymbol{V_{||,Rd}}} \leq \mathbf{1,0}$$

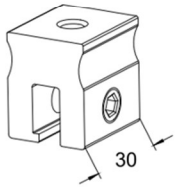
$F_{t,Ed}$	Design value of the applied tensile force
$V_{\|\|,Ed}$	Design value of the applied shear forces

In the case of combined loading by compressive and shear forces, interaction may be neglected.

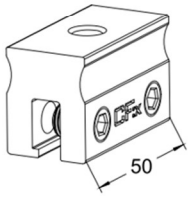
Installation conditions

The installation is carried out according to manufacturer`s instruction. The requirements for the layout on the roof surface, the (pairwise) coupling of clamps and the line of action of the force resulting from detailing shall be observed.

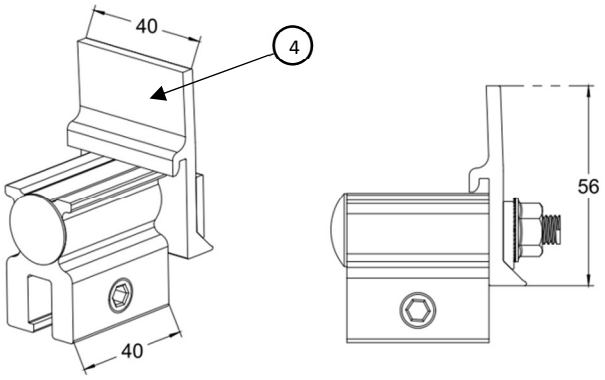
The tightening torque $M_{t,nom}$ specified by the manufacturer shall be observed.



DS-Mini 30



DS-Clamp 50



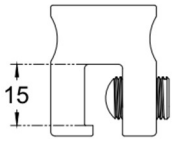
DS-Medi 40

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x15
Material	A2-70
Tightening torque	
Set screw	18 Nm
Side clip	15 Nm

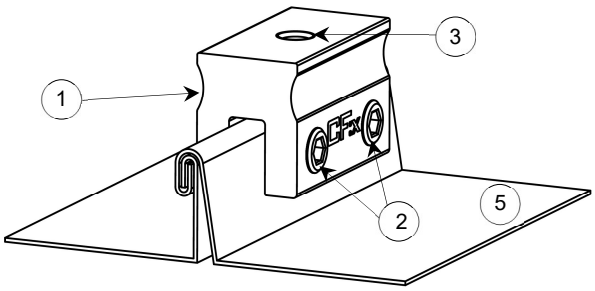
Description

(1) Clamp body
(2) Convex set screw
(3) Top mount hole M6 - M12
(4) Side clip
(5) Profile



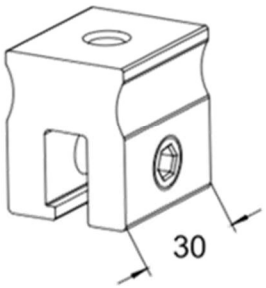
Profile

Manufacturer	RHEINZINK
Profile	RHEINZINK Stehfalzsystem
Material	zinc-copper-titanium
	$R_{p0,2} \geq 110$ N/mm²
	$R_m \geq 150$ N/mm²
Sheet thickness	$t_N \geq 0,7$ mm
Type of seam	Double folded standing seam

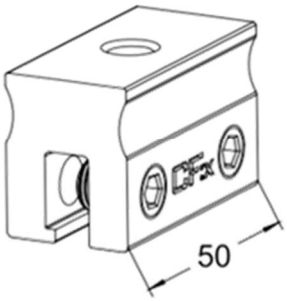


Characteristic Resistances

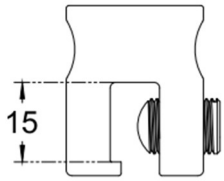
	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{\|\|,Rk}$
DS-Mini 30, DS-Clamp 50, DS-Medi 40	1,61 kN	1,92 kN	2,87 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			



DS-Mini 30

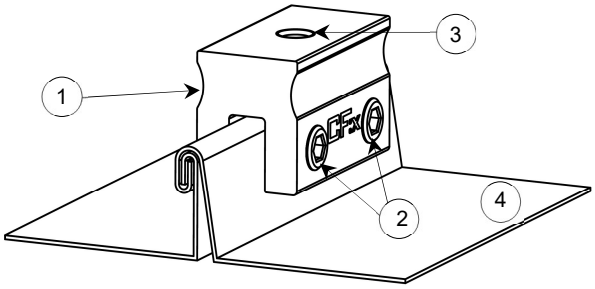


DS-Clamp 50



Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x15
Material	A2-70
Tightening torque	
Set screw	18 Nm



Description

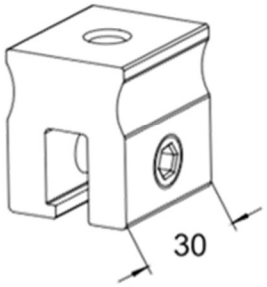
(1) Clamp body
(2) Convex set screw
(3) Top mount hole M6 - M12
(4) Profile

Profile

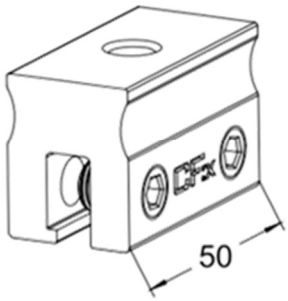
Manufacturer	Prefa
Profile	Prefalz
Material	EN-AW 3005-H41
	$R_{p0,2}$ = 80 N/mm²
	R_m = 130 N/mm²
Sheet thickness	t_N = 0,7 mm
Coating	P.10
Typeof seam	Double folded standing seam

Characteristic Resistances

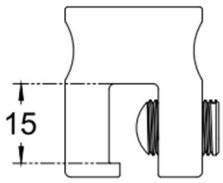
	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{\|\|,Rk}$
DS-Mini 30, DS-Clamp 50	0,78 kN	3,14 kN	1,62 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			



DS-Mini 30

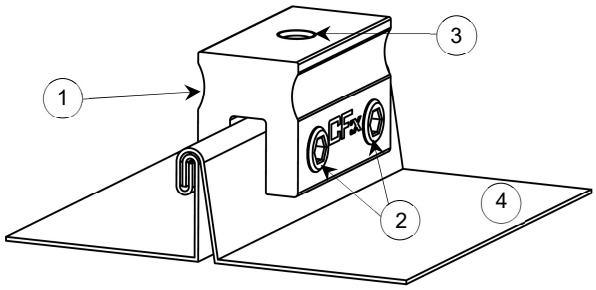


DS-Clamp 50



Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x15
Material	A2-70
Tightening torque	
Set screw	18 Nm



Profile

Manufacturer	Aperam Stainless Europe
Profile	Uginox Top
Material	1.4301 or 1.4401 $R_{p0,2}$ = 300 N/mm² R_m ≥ 620 N/mm²
Sheet thickness	t_N = 0,5 mm
Type of seam	Double folded standing seam

Description

(1) Clamp body
(2) Convex set screw
(3) Top mount hole M6 - M12
(4) Profile

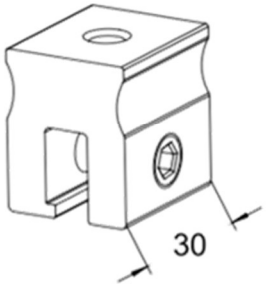
Characteristic Resistances

	Pull off resistance $F_{t,Rk}$	Seam crippling resistance $R_{w,Rk}$	Slip resistance $V_{||,Rk}$
DS-Mini 30, DS-Clamp 50	9,24 kN	1,46 kN	2,65 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			

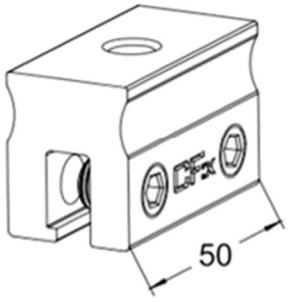
CF:x Seam Clamps for Uginox Top

Annex 5

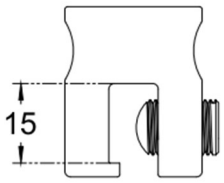
DS-Mini 30 and DS-Clamp 50



DS-Mini 30



DS-Clamp 50



Clamp

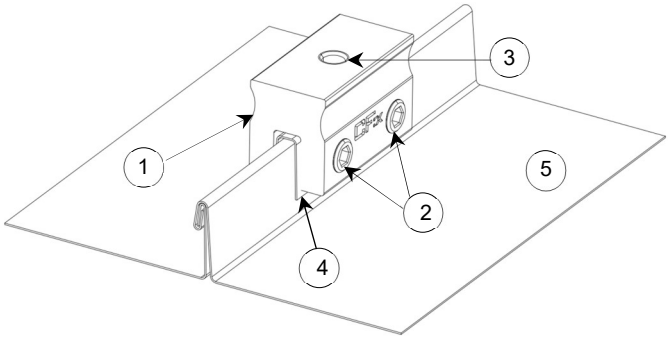
Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x15
Material	A2-70
Tightening torque	
Set screw	18 Nm

Insert

Material	1.4301
Dimension	55 x 19 x 7 mm

Profile

Manufacturer	KME Germany GmbH
Profile	Tecu Oxid
Material	CU-DHP R240 $R_{p0,2}$ = 180 N/mm² R_m = 240 N/mm²
Sheet thickness	$t_N \geq$ 0,6 mm
Type of seam	Double folded standing seam



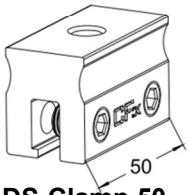
Description

(1) Clamp body
(2) Convexe set screw
(3) Top mount hole M6 - M12
(4) Insert
(5) Profile

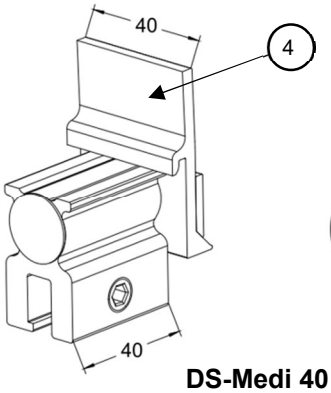
Characteristic Resistances

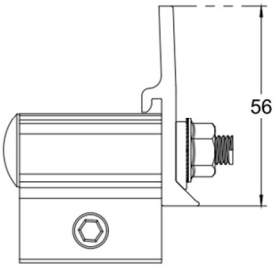
	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{\|\|,Rk}$
DS-Mini 30, DS-Clamp 50,	3,64 kN	3,46 kN	0,89 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			

DS-Mini 30



DS-Clamp 50





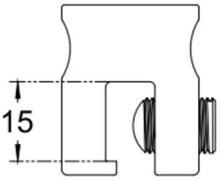
DS-Medi 40

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x15
Material	A2-70
Tightening torque	
Set screw	18 Nm
Side clip	15 Nm

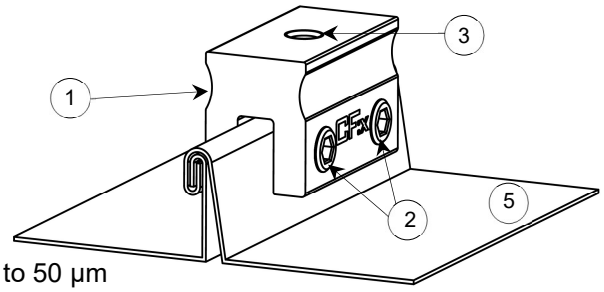
Description

(1) Clamp body
(2) Convex set screw
(3) Top mount hole M6 - M12
(4) Side clip
(5) Profile



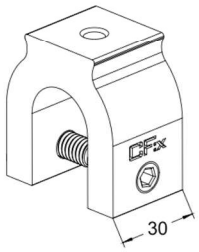
Profile

Manufacturer	SSAB
Profile	SSAB GreenCoat PLX Pural BT
Material	DX54D
	$R_{p0,2}$ = 120 N/mm²
	R_m = 260 N/mm²
Sheet thickness	t_N = 0,6 mm
Metallic coating	Z350
Organic coating	GreenCoat PLX Pural BT 45 µm to 50 µm
Type of seam	Double folded standing seam

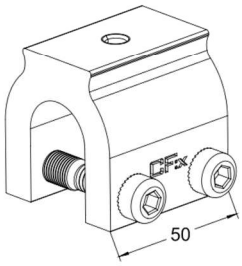


Characteristic Resistances

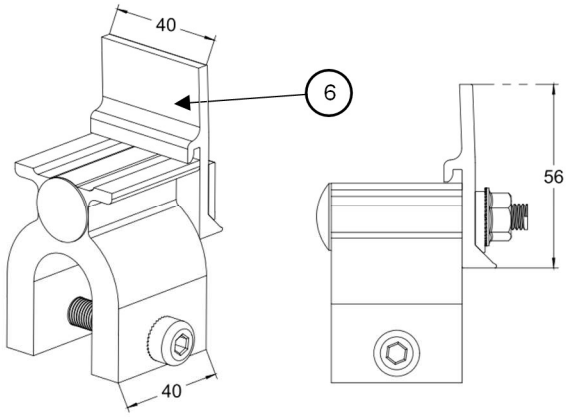
	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{||,Rk}$
DS-Mini 30, DS-Clamp 50,	5,08 kN	2,71 kN	1,75 kN
DS-Medi	3,79 kN	2,71 kN	1,75 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			



R-Mini 30



R-Clamp 50



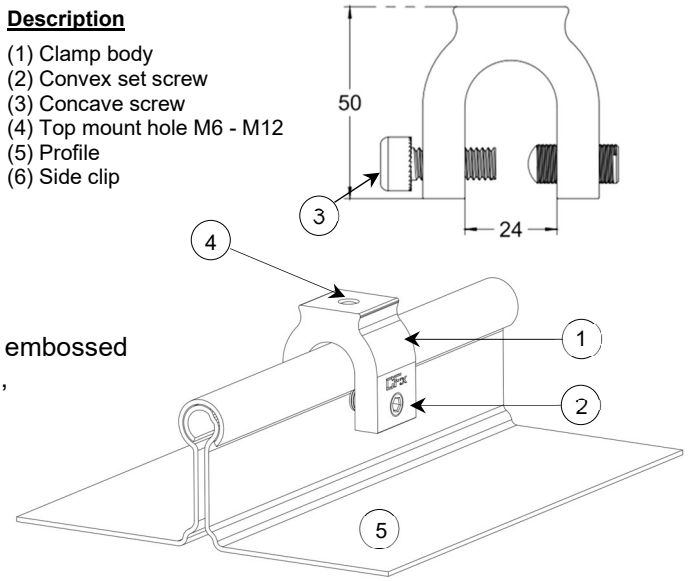
R-Medi 40

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x23
Material	A2-70
Tightening torque	18 Nm
Concave screw	
Dimension	M10x22
Material	A2-70

Description

(1) Clamp body
(2) Convex set screw
(3) Concave screw
(4) Top mount hole M6 - M12
(5) Profile
(6) Side clip

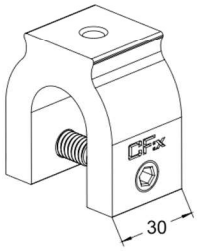


Profile

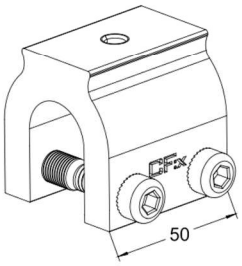
Manufacturer	Bemo
Profile	BEMO-FLAT-ROOF stucco embossed
Material	EN AW-3004, EN AW-3004, EN AW-3105
	$R_{p0,2} \geq 185$ N/mm²
	$R_m \geq 200$ N/mm²
Sheet thickness	$t_N \geq 0,8$ mm
Assessment	ETA-15/0351

Characteristic Resistances

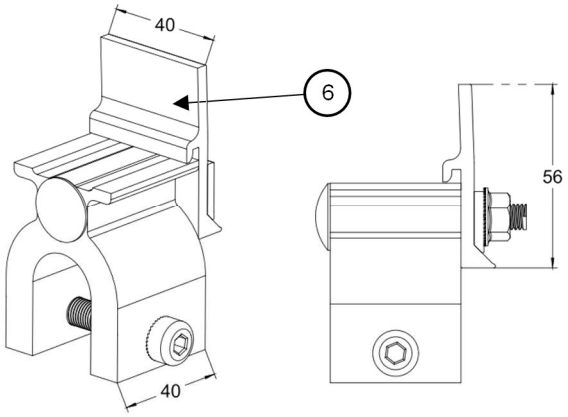
	Pull off Resistance $F_{t,Rk}$		Seam crippling Resistance $R_{w,Rk}$		Slip Resistance $V_{\|\|,Rk}$	
	0,8 ≤ t < 1,0	t≥1,0mm	0,8 ≤ t < 1,0	t≥1,0mm	0,8 ≤ t < 1,0	t≥1,0mm
R-Mini 30 R-Clamp 50	2,97 kN	3,92 kN	2,19 kN	4,36 kN	4,09 kN	5,77 kN
R-Medi 40	1,87 kN	2,46 kN	2,19 kN	4,36 kN	4,09 kN	5,77 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.						



R-Mini 30



R-Clamp 50



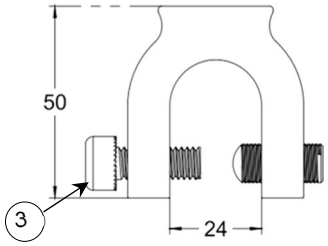
R-Medi 40

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x23
Material	A2-70
Tightening torque	18 Nm
Concave screw	
Dimension	M10x22
Material	A2-70

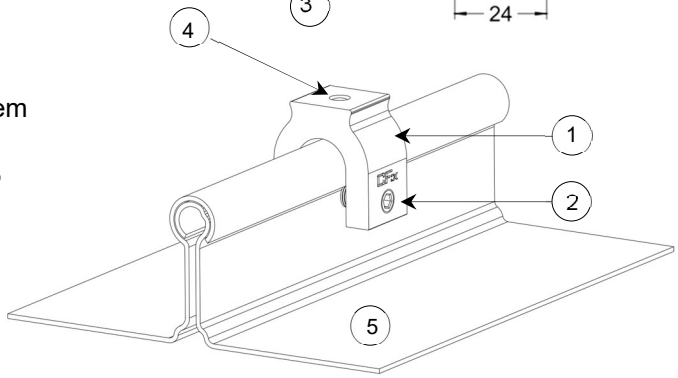
Description

(1) Clamp body
(2) Convex set screw
(3) Concave screw
(4) Top mount hole M6 - M12
(5) Profile
(6) Side clip



Profile

Manufacturer	Kalzip
Profile	Kalzip Standing Seam System stucco-embossed
Material	EN AW-3004, EN AW-3005, EN AW-6025 $R_{p0,2} \geq 185$ N/mm² $R_m \geq 200$ N/mm²
Sheet thickness	$t_N \geq 0,8$ mm
Assessment	ETA-13/0606



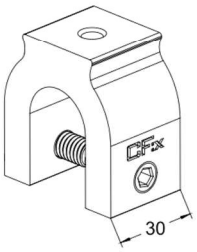
Characteristic Resistances

	Pull off Resistance $F_{t,Rk}$		Seam crippling Resistance $R_{w,Rk}$		Slip Resistance $V_{\|\|,Rk}$	
	0,8 ≤ t < 1,0	t ≥ 1,0 mm	0,8 ≤ t < 1,0	t ≥ 1,0 mm	0,8 ≤ t < 1,0	t ≥ 1,0 mm
R-Mini 30 R-Clamp 50	2,97 kN	3,92 kN	2,19 kN	4,36 kN	4,09 kN	5,77 kN
R-Medi 40	1,87 kN	2,46 kN	2,19 kN	4,36 kN	4,09 kN	5,77 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.						

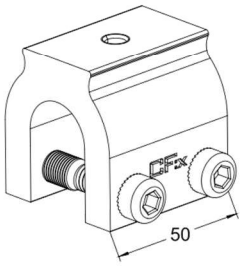
CF:x Seam Clamps for Kalzip Standing Seam System

Annex 9

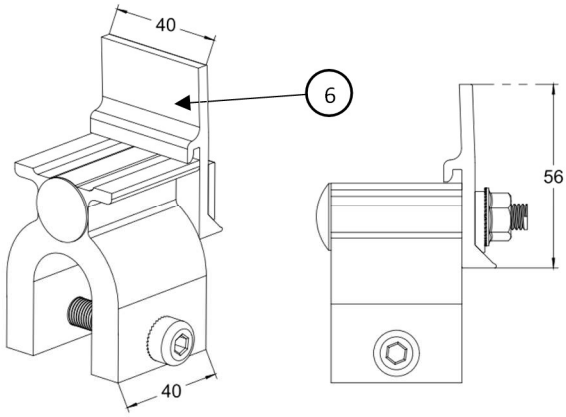
R-Mini 30, R-Medi 40 and R-Clamp 50



R-Mini 30



R-Clamp 50



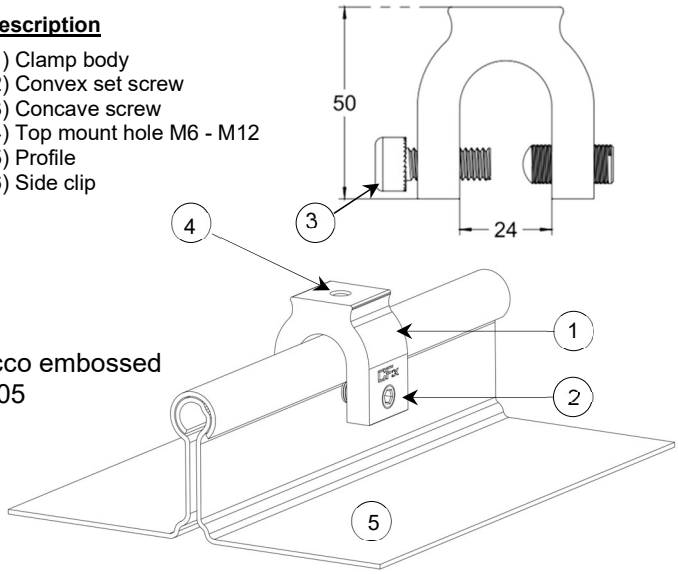
R-Medi 40

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x23
Material	A2-70
Tightening torque	18 Nm
Concave screw	
Dimension	M10x22
Material	A2-70

Description

(1) Clamp body
(2) Convex set screw
(3) Concave screw
(4) Top mount hole M6 - M12
(5) Profile
(6) Side clip



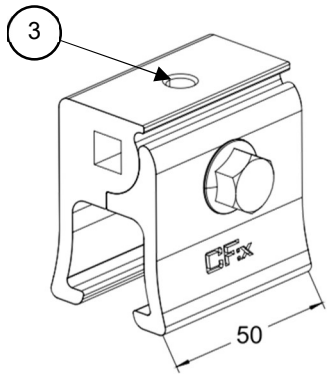
Profile

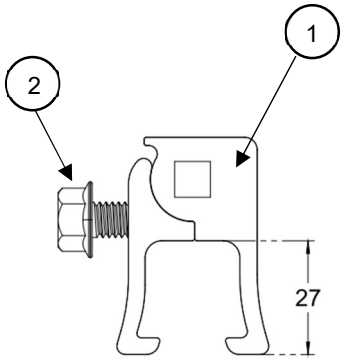
Manufacturer	Zambelli
Profile	RIB-ROOF Evolution stucco embossed
Material	EN AW-3004, EN AW-3005
	$R_{p0,2} \geq 185$ N/mm²
	$R_m \geq 200$ N/mm²
Sheet thickness	$t_N \geq 0,8$ mm

Characteristic Resistances

	Pull off Resistance $F_{t,Rk}$		Seam crippling Resistance $R_{w,Rk}$		Slip Resistance $V_{\|\|,Rk}$	
	0,8 ≤ t < 1,0	t≥1,0mm	0,8 ≤ t < 1,0	t≥1,0mm	0,8 ≤ t < 1,0	t≥1,0mm
R-Mini 30 R-Clamp 50	2,97 kN	3,92 kN	2,19 kN	4,36 kN	4,09 kN	5,77 kN
R-Medi 40	1,87 kN	2,46 kN	2,19 kN	4,36 kN	4,09 kN	5,77 kN

The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.





Description
(1) Clamp body
(2) Screw
(3) Top mount hole M6 - M12

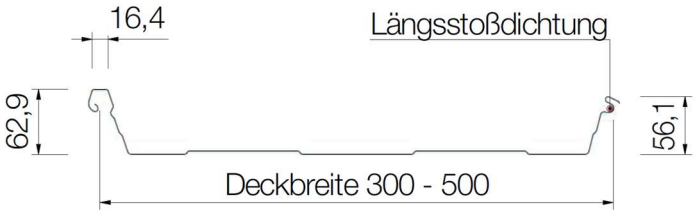
K15-Clamp

Clamp

Material	EN AW-6063-T66
Screw	
Dimension	M8x35
Material	A2-70
Tightening toque	20 Nm

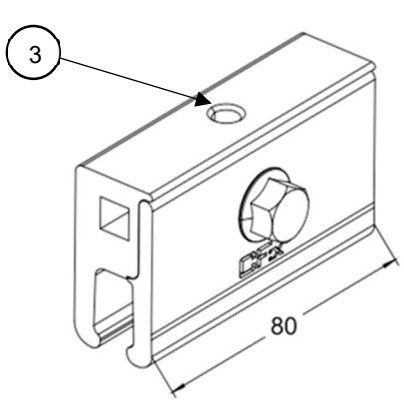
Profile

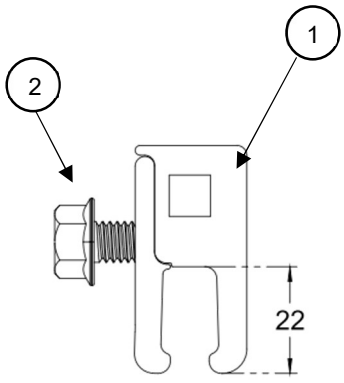
Manufacturer	Domico
Profile	Domitec Stahl
Material	S320GD
	$R_{p0,2}$ = 320 N/mm²
	R_m = 390 N/mm²
Sheet thickness	$t_N \geq 0,75$ mm
Metallic Coating	Z275
Organic coating	Resista 50 µm



Characteristic Resistances

	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{\|\|,Rk}$
K15-Clamp	2,29 kN	2,23 kN	0,29 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			





Description
(1) Clamp body
(2) Screw
(3) Top mount hole M6 - M12

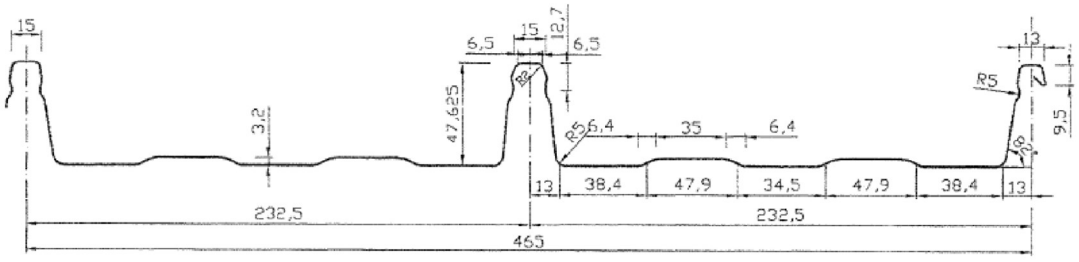
RD80-Clamp

Clamp

Material	EN AW-6063-T66
Screw	
Dimension	M8x20
Material	A2-70
Tightening toque	20 Nm

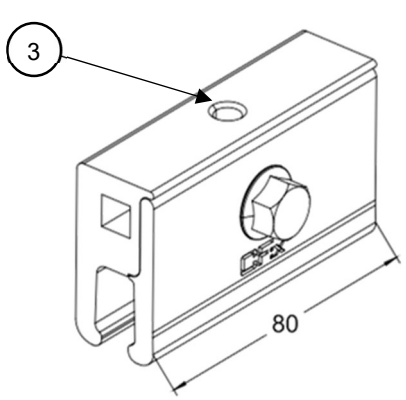
Profile

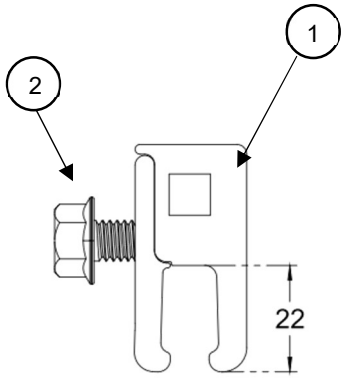
Manufacturer	Zambelli
Profile	RIB-ROOF 465 stucco embossed
Material	EN AW-3004 or EN AW-3005
	$R_{p0,2} \geq 190$ N/mm²
	$R_m \geq 215$ N/mm²
Sheet thickness	$t_N \geq 0,8$ mm



Characteristic Resistances (Values apply for the lap seam)

	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{||,Rk}$
RD80-Clamp	1,61 kN	3,99 kN	0,52 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			





Description
(1) Clamp body
(2) Screw
(3) Top mount hole M6 - M12

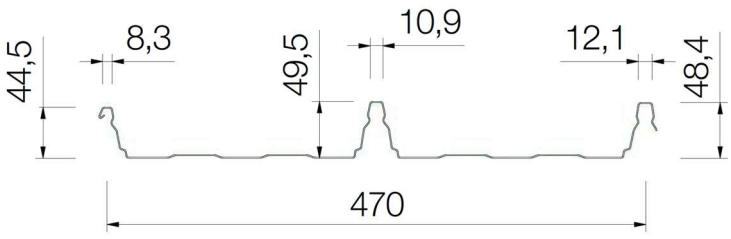
RD80-Clamp

Clamp

Material	EN AW-6063-T66
Screw	
Dimension	M8x20
Material	A2-70
Tightening toque	20 Nm

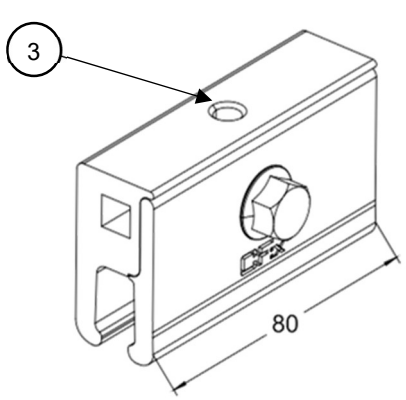
Profile

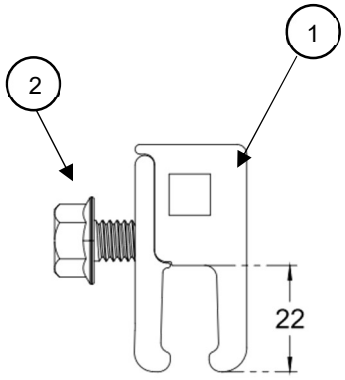
Manufacturer	Domico
Profile	GBS Stahl
Material	S320GD
	$R_{p0,2}$ = 320 N/mm²
	R_m = 390 N/mm²
Sheet thickness	$t_N \geq 0,75$ mm
Metallic Coating	Z275
Organic coating	Resista 50 µm



Characteristic Resistances (Values apply for the lap seam)

	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{||,Rk}$
RD80-Clamp	2,23 kN	6,73 kN	0,50 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			





Description
(1) Clamp body
(2) Screw
(3) Top mount hole M6 - M12

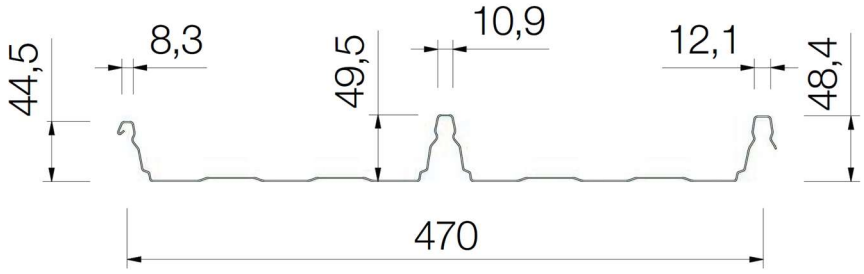
RD80-Clamp

Clamp

Material	EN AW-6063-T66
Screw	
Dimension	M8x20
Material	A2-70
Tightening toque	20 Nm

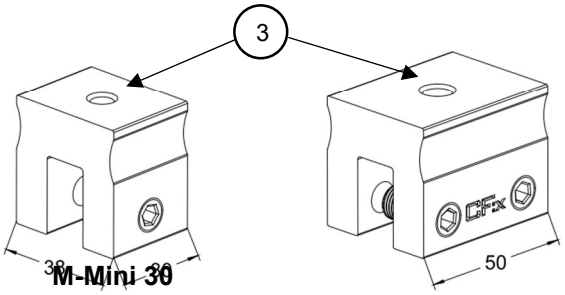
Profile

Manufacturer	Domico
Profile	Aluminum stucco embossed
Material	EN AW-3004
	$R_{p0,2} \geq 220$ N/mm²
	$R_m \geq 250$ N/mm²
Sheet thickness	$t_N \geq 0,8$ mm



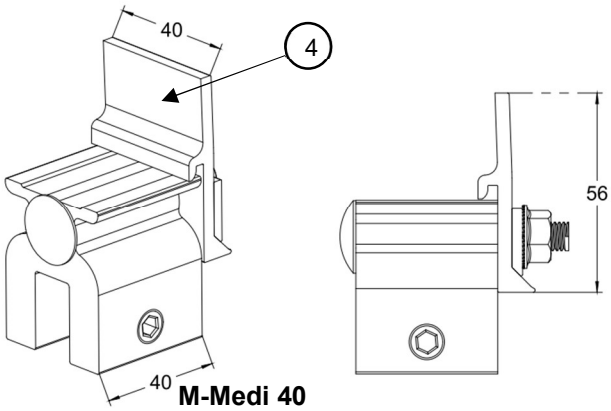
Characteristic Resistances (Values apply for the lap seam)

	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{||,Rk}$
RD80-Clamp	1,12 kN	4,09 kN	0,19 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			

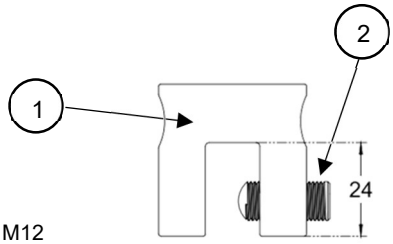


M-Mini 30

M-Clamp 50



M-Medi 40



Description

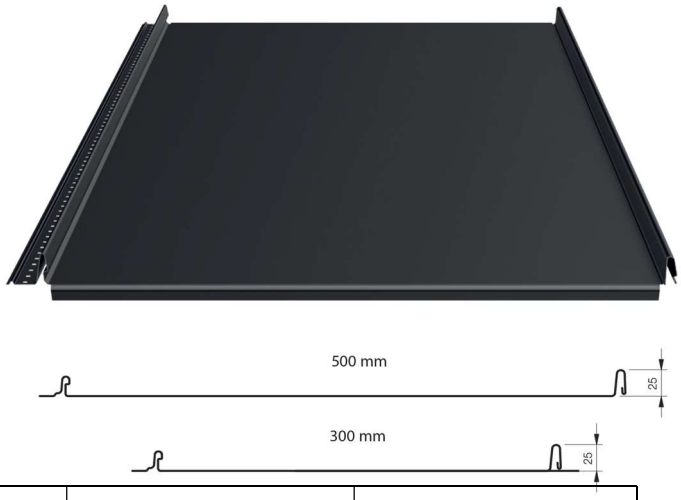
(1) Clamp body
(2) Convex set screw
(3) Top mount hole M6 - M12
(4) Side clip

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x23
Material	A2-70
Tightening torque	
Set screw	18 Nm
Side clip	15 Nm

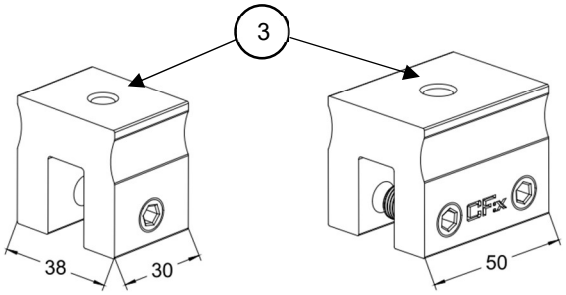
Profile

Manufacturer	Lindab
Profile	Klick-Profil SRP
Sheet thickness	t_N = 0,6 mm
Material	SUB 250
	$R_{p0,2}$ = 250 N/mm²
	R_m = 330 N/mm²
Metallic coating	S275
Organic coating	Durafrost 50 µm

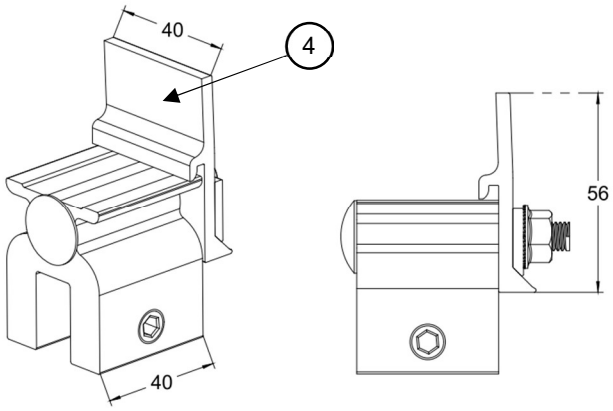


Characteristic Resistances

	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{||,Rk}$
M-Mini 30, M-Clamp 50, M-Medi 40	1,36 kN	4,98 kN	1,29 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			



M-Mini 30 **M-Clamp 50**



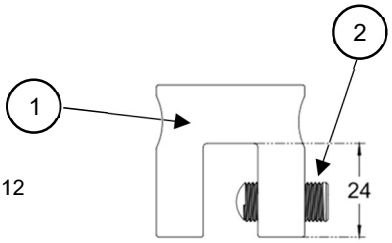
M-Medi 40

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x23
Material	A2-70
Tightening torque	
Set screw	18 Nm
Side clip	15 Nm

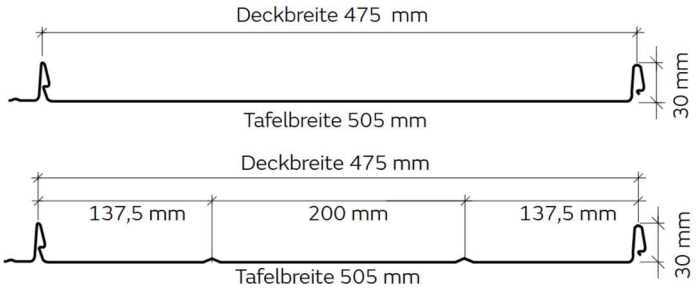
Description

(1) Clamp body
(2) Convex set screw
(3) Top mount hole M6 - M12
(4) Side clip



Profile

Manufacturer	DS Stalprofil A/S
Profile	Nordic Klickfalz 475
Sheet thickness	t_N = 0,6 mm
Material	S280GD
	$R_{p0,2}$ = 280 N/mm²
	R_m = 360 N/mm²
Metallic coating	Z275
Organic coating	Polyester 35 µm



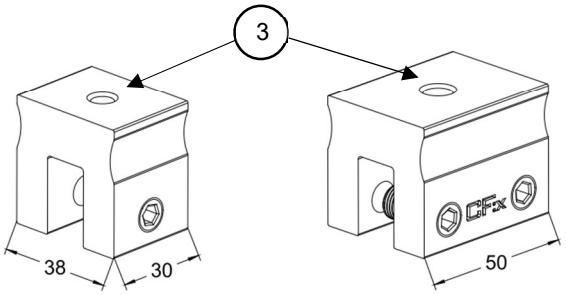
Characteristic Resistances

	Pull off Resistance $F_{t,Rk}$	Seam crippling Resistance $R_{w,Rk}$	Slip Resistance $V_{||,Rk}$
M-Mini 30, M-Clamp 50, M-Medi 40	2,01 kN	3,77 kN	2,31 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			

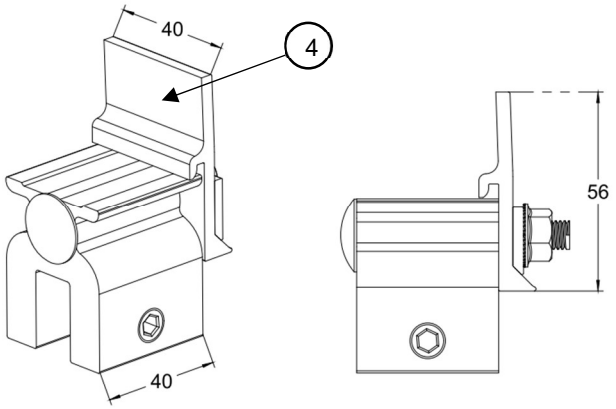
CF:x Seam Clamps for Nordic Klickfalz 475

Annex 16

M-Mini 30, M-Medi 40 and M-Clamp 50



M-Mini 30 **M-Clamp 50**



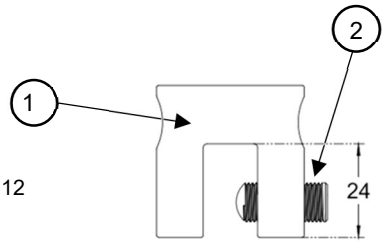
M-Medi 40

Clamp

Material	EN AW-6063-T66
Convex set screw	
Dimension	M10x1x23
Material	A2-70
Tightening torque	
Set screw	18 Nm
Side clip	15 Nm

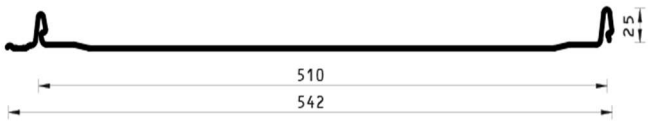
Description

(1) Clamp body
(2) Convex set screw
(3) Top mount hole M6 - M12
(4) Side clip



Profile

Manufacturer	BUDMAT GmbH
Profile	Iron Click
Sheet thickness	t_N = 0,5 mm
Material	S220GD
	$R_{p0,2}$ = 220 N/mm²
	R_m = 300 N/mm²
Metallic coating	Z275
Organic coating	Polyester 25 µm



Characteristic Resistances

	Pull off Resistance $F_{t,Rk}$	Seam crippling resistance $R_{w,Rk}$	Slip Resistance $V_{||,Rk}$
M-Mini 30, M-Clamp 50, M-Medi 40	1,44 kN	2,26 kN	2,30 kN
The recommended partial factor γ_M is 1,33 (seam crippling 1,1), provided no partial factor is given in national regulations or national Annexes to EN 1993 or EN 1999.			

CF:x Seam Clamps for Iron Click

Annex 17

M-Mini 30, M-Medi 40 and M-Clamp 50