



# FS Series Modules

## Approved Retaining Clips

---

This document provides a list of retaining clips compatible and approved for use with the First Solar FS Series 2 and FS Series 3 Modules. This list does not provide recommendations or make evaluations on the final system design or loading requirements. Absence from the list does not indicate that the retaining clip is incompatible, only that the retaining clip has not been submitted to First Solar for testing and approval.

First Solar warrants its FS-Series 2 & 3 modules according to the First Solar Module Warranty Terms & Conditions (PD-5-102, "Module Warranty Terms & Conditions") provided modules are installed, operated and serviced as described in the First Solar User Guide (PD-5-200, "User Guide") and in the System Design and Application document (PD-2-303, "SDA").

First Solar requires all system designs to be submitted for review and approval via the SDA process; therefore, for warranty purposes, every system with First Solar modules must be covered by an SDA. Project Developers and/or Customers should request this document from First Solar and obtain approval prior to equipment procurement and installation.

Approval of the following listed retaining clips is based upon and in accordance with the drawings and specifications effective at the time of evaluation. Thus, changes in design specifications or fabricator after First Solar approval may nullify the confirmation of compatibility. First Solar reserves the right to change the approval requirements for the retaining clip as well as a possible revocation of the retaining clip approval list.

<u>Clip Description &amp; Supplier Contact</u>	<u>First Solar Approval Document #</u>
<ul style="list-style-type: none"> <li>• <b>Schletter ECO6</b> Schletter GmbH Heimgartenstrasse 41, 83527 Haag i. OB, Germany</li> </ul>	<b>PD-5-321-01</b> <i>Clip Length: 70mm</i>
<ul style="list-style-type: none"> <li>• <b>Belectric Modulclip</b> Belectric Trading GmbH Wadenbrunner Str. 10, 97509 Kolitzheim, Germany</li> </ul>	<b>PD-5-321-07</b> <i>Clip Length: 70mm</i>
<ul style="list-style-type: none"> <li>• <b>Alumero Laminat Click</b> Alumero GmbH Rosenweg 22, 5164 Seeham, Austria</li> </ul>	<b>PD-5-321-08</b> <i>Clip Length: 100mm</i>
<ul style="list-style-type: none"> <li>• <b>Habdank FA0X</b> Habdank Metallbau GmbH &amp; Co. KG Heinrich-Landerer-Str. 62, 73037 Göppingen, Germany</li> </ul>	<b>PD-5-321-10</b> <i>Clip Length: 60mm</i>
<ul style="list-style-type: none"> <li>• <b>Donauer INTERSOL-Laminatklemme</b> Donauer Solartechnik Vertriebs GmbH Zeppelinstrasse 10, 82205 Gilching, Germany</li> </ul>	<b>PD-5-321-11</b> <i>Clip Length: 100mm</i>
<ul style="list-style-type: none"> <li>• <b>Schletter Click Connection</b> Schletter GmbH Heimgartenstrasse 41, 83527 Haag i. OB, Germany</li> </ul>	<b>PD-5-321-13</b> <i>Clip Length: 65mm</i>
<ul style="list-style-type: none"> <li>• <b>Gehrtec Laminatklemme-FS</b> Gehrlicher Solar AG Max-Planck-Straße 3, 85609 Dornach, Germany</li> </ul>	<b>PD-5-321-14</b> <i>Clip Length: 80mm</i>
<ul style="list-style-type: none"> <li>• <b>Schüco-Clip</b> Schüco International KG Karolinenstraße 1-15, 33609 Bielefeld, Germany</li> </ul>	<b>PD-5-321-15</b> <i>Clip Length: 80mm</i>
<ul style="list-style-type: none"> <li>• <b>ALuTec FL</b></li> </ul>	<b>PD-5-321-16</b>

**Note: !!! Only approved for inverters with galvanic isolation and negative grounding!!!**

<ul style="list-style-type: none"> <li>• <b>Creotecc GmbH</b> Sasbacher Straße 9, 79111 Freiburg, Germany</li> </ul>	<i>Clip Length: 1200mm</i>
<ul style="list-style-type: none"> <li>• <b>Phoenix Solar Clip</b> Phoenix Solar AG Hirschberstraße 8, 85254 Sulzemoos, Germany</li> </ul>	<b>PD-5-321-17</b> <i>Clip Length: 80mm</i>

- **Schüco LC Light** ..... **PD-5-321-18**  
 Schüco International KG  
 Karolinenstraße 1-15, 33609 Bielefeld, Germany  
*Clip Length: 70mm*
- **Conergy SunTop III Clip** ..... **PD-5-321-19**  
 Conergy AG  
 Anckelmannsplatz 1, 20537 Hamburg, Germany  
*Clip Length: 80mm*
- **SolTec** ..... **PD-5-321-20**  
 Soltech GmbH  
 Rachheide 12, 33739 Bielefeld, Germany  
*Clip Length: 95mm*
- **RegTec** ..... **PD-5-321-21**  
 RegTec GmbH  
 Gräfenbergstraße 4, 97859 Wiesthal, Germany  
*Clip Length: 80mm*
- **VM-Edelstahltechnik** ..... **PD-5-321-23**
- **VM Edelstahltechnik GmbH** ..... *Clip Length: 80mm*  
 Bannewerthstraße 6, 58840 Plettenberg, Germany **HatiCon AK-SP**  
 ..... **PD-5-321-26**  
 HatiCon GmbH  
 Ackerstr. 4, 16303 Schwedt, Germany  
*Clip Length: 100mm*
- **Hilti Clip** ..... **PD-5-321-29**  
 Hilti Corporation  
 Feldkircherstrasse 100, 9494 Schaan, Liechtenstein  
*Clip Length: 80mm*
- **MP-TEC Clip** ..... **PD-5-321-30**  
 MP-TEC GmbH & Co.KG  
 Wilhelm-Conrad-Röntgen-Str. 10-12, 16225 Eberswalde, Germany  
*Clip Length: 70mm*
- **GSG Clip** ..... **PD-5-321-31**  
 GSG Ingenieurbüro und Photovoltaik GmbH  
 Bautzener Straße 40, 02956 Rietschen, Germany  
*Clip Length: 70mm*
- **Gehrtec Laminatklemmen FS A3** ..... **PD-5-321-32**  
 Gehrlicher Solar AG  
 Max-Planck-Straße 3, 85609 Dornach, Germany  
*Clip Length: 80mm*
- **Gehrtec Laminatklemmen Base FS** ..... **PD-5-321-33**  
 Gehrlicher Solar AG  
 Max-Planck-Straße 3, 85609 Dornach, Germany  
*Clip Length: 80mm*
- **Gehrtec Laminatklemmen Top FS** ..... **PD-5-321-34**

- Gehrlicher Solar AG  
Max-Planck-Straße 3, 85609 Dornach, Germany *Clip Length: 80mm*
- **HatiCon AK-SP 80mm** ..... **PD-5-321-35**  
HatiCon GmbH *Clip Length: 80mm*  
Ackerstr. 4, 16303 Schwedt, Germany
  - **CTS C-0002-00** ..... **PD-5-321-38**  
Belectric Trading GmbH *Clip Length: 70mm*  
Wadenbrunner Str. 10, 97509 Kolitzheim, Germany
  - **MK-A C-0002-00** ..... **PD-5-321-39**  
Jurchen Technology GmbH *Clip Length: 70mm*  
Prinz-Ludwig-Straße 5, 97264 Helmstadt, Germany
  - **Laminat SECURITAS** ..... **PD-5-321-40**  
Alumero GmbH *Clip Length: 70mm*  
Rosenweg 22, 5164 Seeham, Austria
  - **PVStrom Omega FS** ..... **PD-5-321-41**  
PVStrom GmbH & Co. KG *Clip Length: 80mm*  
Strombergstr. 3, 74366 Kirchheim am Neckar, Germany
  - **Apollon Clip** ..... **PD-5-321-42**  
Apollon s.r.l. *Clip Length: 80mm*  
Via Guarneri 79, 47023 Cesena (FC), Italy
  - **VM Edelstahltechnik Mono Modulclip** ..... **PD-5-321-44**  
VM Edelstahltechnik GmbH *Clip Length: 70mm*  
Bannewerthstraße 6, 58840 Plettenberg, Germany
  - **Fath Laminatklemme** ..... **PD-5-321-45**  
Fath GmbH *Clip Length: 80mm*  
Gewerbepark Hügelmühle, 91174 Spalt, Germany
  - **SAPA - Double Face FS Clip 80mm (two parts)** ..... **PD-5-321-47**  
SAPA Profiles Albi *Clip Length: 80mm*  
ZA du Garric, 81450 Le Garric, France
  - **SAPA - Double Face FS Clip 100mm (two parts)** ..... **PD-5-321-48**  
SAPA Profiles Albi *Clip Length: 100mm*  
ZA du Garric, 81450 Le Garric, France

- **SAPA - Double Face FS Clip 150mm (two parts)** ..... **PD-5-321-49**

**Note: !!! Only approved for inverters with galvanic isolation and negative grounding!!!**

SAPA Profiles Albi  
ZA du Garric, 81450 Le Garric, France *Clip Length: 150mm*

- **SAPA - Double Face FS Clip 80mm (one part)** ..... **PD-5-321-50**  
SAPA Profiles Albi *Clip Length: 80mm*  
ZA du Garric, 81450 Le Garric, France

- **SAPA - Double Face FS Clip 100mm (one part)** ..... **PD-5-321-51**  
SAPA Profiles Albi *Clip Length: 100mm*  
ZA du Garric, 81450 Le Garric, France

- **SAPA - Double Face FS Clip 150mm (one part)** ..... **PD-5-321-52**

**Note: !!! Only approved for inverters with galvanic isolation and negative grounding!!!**

SAPA Profiles Albi  
ZA du Garric, 81450 Le Garric, France *Clip Length: 150mm*

- **CWF-Clip FS-G2** ..... **PD-5-321-53**  
CWF GmbH *Clip Length: 70mm*  
Holunderweg 19, 74547 Enslingen, Germany

- **Mounting Systems Laminat Clip** ..... **PD-5-321-54**  
Mounting Systems GmbH *Clip Length: 80mm*  
Mittenwalder Straße 9a, 15834 Rangsdorf, Germany

- **Conergy Laminat Clip** ..... **PD-5-321-55**  
Conergy AG *Clip Length: 80mm*  
Anckelmannsplatz 1, 20537 Hamburg, Germany

- **GSG FastClip** ..... **PD-5-321-56**  
GSG Ingenieurbüro und Photovoltaik GmbH *Clip Length: 80mm*  
Bautzener Straße 40, 02956 Rietschen, Germany

- **SolBau All-Fix Laminatklemmen** ..... **PD-5-321-57**  
SolBau GmbH & Co. KG *Clip Length: 80mm*  
Osttor 2, 48165 Bielefeld, Germany

- **Laminatklemme AK Klick** ..... **PD-5-321-59**  
 HatiCon GmbH  
 Ackerstr. 4, 16303 Schwedt, Germany  
*Clip Length: 80mm*
- **Schüco MSE 200 LaminateSmallClip** ..... **PD-5-321-60**  
 Schüco International KG  
 Karolinenstraße 1-15, 33609 Bielefeld, Germany  
*Clip Length: 70mm*
- **Mono FK** ..... **PD-5-321-61**  
 VM Edelstahltechnik GmbH  
 Bannewerthstraße 6, 58840 Plettenberg, Germany  
*Clip Length: 80mm*
- **AWS FS-MMK80** ..... **PD-5-321-64**  
 Aluminumwerk Schönebeck  
 Industriestr. 6, 39218 Schönebeck, Germany  
*Clip Length: 80mm*
- **Montavent Laminat** ..... **PD-5-321-65**  
 Montavent GmbH  
 Limmatstr. 31, 8005 Zürich, Switzerland  
*Clip Length: 80mm*
- **Laminatklemme N** ..... **PD-5-321-67**  
 VM Edelstahltechnik GmbH  
 Bannewerthstraße 6, 58840 Plettenberg, Germany  
*Clip Length: 80mm*
- **ER Clip and Rail system** ..... **PD-5-321-68**  
 Energy Resources SpA  
 Via primo maggio 26, 60131 Ancona, Italy  
*Clip Length: 100mm*
- **RegTec ReLight** ..... **PD-5-321-69**  
 RegTec GmbH  
 Gräfenbergstr. 4, 97859 Woesthal. Germany  
*Clip Length: 80mm*
- **PVStrom Omega FS II Modulclip** ..... **PD-5-321-70**  
 PVStrom Energy Systems GmbH & Co. KG  
 Strombergstr. 3, 74366 Kirchheim a. Neckar, Germany  
*Clip Length: 80mm*
- **PVStrom Omega FS III Modulclip** ..... **PD-5-321-71**  
 PVStrom Energy Systems GmbH & Co. KG  
 Strombergstr. 3, 74366 Kirchheim a. Neckar, Germany  
*Clip Length: 80mm*
- **PVG** ..... **PD-5-321-72**  
 Sikla GmbH  
 In der Lache 17, 78056 VS-Schwenningen, Germany  
*Clip Length: 80mm*

- **Raised SAPA Clamp** ..... **PD-5-321-73**  
 SAPA Profiles Albi  
 ZA du Garric, 81450 Le Garric, France  
*Clip Length: 80mm*
- **Glasklemmen 6,8mm** ..... **PD-5-321-75**  
 MAGE SunFIXINGS GmbH  
 Industriepark Ost 2-3, 9111 Haimburg, Austria  
*Clip Length: 80mm*
- **Helios MH I / II** ..... **PD-5-321-77**  
 Helios Energie GmbH  
 Institut Garnier Nr. 4, 61381 Friedrichsdorf, Germany  
*Clip Length: 80mm*
- **FS LS V1** ..... **PD-5-321-78**  
 juwi R & D Research & Development GmbH & Co. KG  
 Energie-Allee 1, 55286 Wörrstadt, Germany  
*Clip Length: 80mm*
- **IMC-1200-FS-AR** ..... **PD-5-321-79**  
 Sorgenia Solar S.r.L.  
 Via Enrico Ortolani 109, 00125 – Roma, Italy  
*Clip Length: 80mm*
- **K2 Grip** ..... **PD-5-321-80**  
 K2 Systems GmbH  
 Riedwiesenstr. 13-17, 71229 Leonberg, Germany  
*Clip Length: 80mm*
- **LEA** ..... **PD-5-321-81**  
 Alumati Aluminiumservice GmbH  
 Gewerbestrasse 2, 5201 Seekirchen am Wallersee, Austria  
*Clip Length: 75mm*
- **Gehrtec Intra** ..... **PD-5-321-82**

---

**Note: !!! Only approved for inverters with galvanic isolation and negative grounding!!!**

---

Gehrlicher Solar AG  
 Max-Planck-Str. 3, 85609 Dornach, Germany

- **Terrafix Moduldoppelklemme** ..... **PD-5-321-84**  
 Terrafix GmbH  
 Dr.-Gryll-Str. 9, 84051 Essenbach/Altheim, Germany  
*Clip Length: 80mm*
- **Modulklemme MK-1-80 / RK-1-80** ..... **PD-5-321-85**  
 Habdank PV-Montagesysteme GmbH & Co. KG  
 Heinrich-Landerer Strasse 66, 73037 Göppingen, Germany  
*Clip Length: 80mm*
- **Laminat-Clip** ..... **PD-5-321-86**

- |  |   |
|--|---|
| Benz Alusysteme GmbH<br>Im Staffelrain 5, 74379 Ingersheim, Germany  | <i>Clip Length: 100mm</i>                       |
| <hr/>  |   |
| • <b>Benzlaminatsystem</b><br>Benz Alusysteme GmbH<br>Im Staffelrain 5, 74379 Ingersheim, Germany  | <b>PD-5-321-88</b><br><i>Clip Length: 100mm</i> |
| <hr/>  |   |
| • <b>Hilti MSP-TF-MC 6.8 middle clamp / MSP-TF-EC 6.8 end clamp</b><br>Hilti Corporation<br>Feldkircherstrasse 100, 9494 Schaan, Liechtenstein | <b>PD-5-321-89</b><br><i>Clip Length: 80mm</i>  |
| <hr/>  |   |
| • <b>GMS</b><br>Montagebau Karl Göbel<br>Pfaffenmühlweg 86, 74613 Öhringen, Germany  | <b>PD-5-321-90</b><br><i>Clip Length: 70mm</i>  |
| <hr/>  |   |
| • <b>Benz Laminat V1</b><br>Benz Alusysteme GmbH<br>Im Staffelrain 5, 74379 Ingersheim, Germany  | <b>PD-5-321-94</b><br><i>Clip Length: 100mm</i> |
| <hr/>  |   |
| • <b>Benz Laminat Clamp V1</b><br>Benz Alusysteme GmbH<br>Im Staffelrain 5, 74379 Ingersheim, Germany  | <b>PD-5-321-95</b><br><i>Clip Length: 100mm</i> |
| <hr/>  |   |
| • <b>Gehrtec Laminatklemmen</b><br>Gehrlicher Solar AG<br>Max-Planck-Str. 3, 85609 Dornach, Germany  | <b>PD-5-321-96</b><br><i>Clip Length: 75mm</i>  |
| <hr/>  |   |
| • <b>Laminatklemme Pro</b><br>MP-TEC GmbH Co. KG<br>Wilhelm-Conrad-Röntgen-Str. 10, 16225 Eberswalde, Germany                                  | <b>PD-5-321-100</b><br><i>Clip Length: 80mm</i> |
| <hr/>  |   |
| • <b>ACME FS module mounting clips</b><br>ACME Tele Power Ltd<br>Plot No.2, Sector – 34, 122001 Gurgaon, India                                 | <b>PD-5-321-101</b><br><i>Clip Length: 80mm</i> |
| <hr/>  |   |
| • <b>BD7 Clamp (120)</b>   | <b>PD-5-321-102</b>                             |

**Note: !!! Only approved for inverters with galvanic isolation and negative grounding!!!**

---

- |  |  |
|--|--|
| Solarstem<br>c/Cal Ros dels Ocells 20, 08403 Granollers, Spain | <i>Clip Length: 120mm</i>                        |
| <hr/>  |  |
| • <b>BD7 Clamp (100)</b><br>Solarstem                          | <b>PD-5-321-103</b><br><i>Clip Length: 100mm</i> |



c/Cal Ros dels Ocells 20, 08403 Granollers, Spain

- **MSP-TF-MC 6.8 100 middle clamp / MSP-TF-EC 6.8 100** ..... **PD-5-321-104**  
Hilti Corporation ..... *Clip Length: 100mm*  
Feldkircherstrasse 100, 9494 Schaan, Liechtenstein
- **ER overlapping profiles** ..... **PD-5-321-105**

**Note: !!! Only approved for inverters with galvanic isolation and negative grounding!!!** *Clip Length: 1200mm*

- Energy Resources SpA ..... *Clip Length: 1200mm*  
Via primo maggio 26, 60131 Ancona, Italy
- **Montavent Laminat 2** ..... **PD-5-321-107**  
Montavent GmbH ..... *Clip Length: 80mm*  
Limmatstr. 31, 8005 Zürich, Switzerland
- **AmbiLight** ..... **PD-5-321-108**  
AmbiVolt GmbH ..... *Clip Length: 80mm*  
Ahornstr. 8, 85716 Unterschleißheim, Germany
- **MIA** ..... **PD-5-321-109**  
Alumati Aluminiumservice GmbH ..... *Clip Length: 75mm*  
Gewerbestr. 2, 5201 Seekirchen am Wallersee, Austria
- **Hilti MSP-TF-MC 6.8 65 middle clamp / MSP-TF-EC 6.8 65** ..... **PD-5-321-110**  
Hilti Corporation ..... *Clip Length: 65mm*  
Feldkircherstrasse 100, 9494 Schaan, Liechtenstein
- **Akcome FS Clip Gen 2 (M8)** ..... **PD-5-321-111**  
Suzhou Akcome photovoltaic system Co.,Ltd ..... *Clip Length: 70mm*  
Dongqu Road Economic Development Zone, 215600 Zhangjiagang-JiangSu, China
- **Akcome FS Clip Gen 2 (M6)** ..... **PD-5-321-112**  
Suzhou Akcome photovoltaic system Co.,Ltd ..... *Clip Length: 70mm*  
Dongqu Road Economic Development Zone, 215600 Zhangjiagang-JiangSu, China
- **FS LS Gen1 V4** ..... **PD-5-321-113**  
juwi R & D Research & Development GmbH & Co. KG ..... *Clip Length: 80mm*  
Energie-Allee 1, 55286 Wörrstadt, Germany
- **Schüco MSE 210 Laminatklemmhalter** ..... **PD-5-321-114**  
Schüco International KG ..... *Clip Length: 70mm*

Karolinenstraße 1-15, 33609 Bielefeld, Germany

- **BlackSun** ..... **PD-5-321-116**

**Note:** !!! Only approved for inverters with galvanic isolation and negative grounding!!!

Baraclit S.p.A. *Clip Length: 80mm*  
S.S. 71 Località Pianacci 19, 52012 Bibbiena, Italy

- **TAFS01** ..... **PD-5-321-117**

**Note:** !!! Only approved for inverters with galvanic isolation and negative grounding!!!

Tranceria Attrezzeria s.r.l. *Clip Length: 80mm*  
Via Leonardo da Vinci 23, 20070 Pieve Fissiraga (LO), Italy

- **Around You Glass / Glass Module Clamp** ..... **PD-5-321-120**

Thesan S.p.A. *Clip Length: 85mm*  
Via Torino 25, 10050 Chiusa di San Michele (TO), Italy

- **OPC** ..... **PD-5-321-121**

Alumati Aluminiumservice GmbH *Clip Length: 75mm*  
Gewerbestrasse 2, 5201 Seekirchen am Wallersee, Austria

- **Safety Klick** ..... **PD-5-321-122**

Alusen *Clip Length: 70mm*  
Löwenbrucher Ring 20, Ludwigsfelde, Germany 14974

- **Safety** ..... **PD-5-321-123**

Alusen *Clip Length: 70mm*  
Löwenbrucher Ring 20, Ludwigsfelde, Germany 14974

- **P-TF Clamp I** ..... **PD-5-321-124**

Powerway *Clip Length: 70.0*  
Address Street, number, Region , China , Postal Code

- **MK6** ..... **PD-5-321-125**

Habdank *Clip Length: 80.0mm*  
Heinrich-Landerer-Str. 62, Göppingen Germany 73037

- **FS LS Gen2 V1** ..... **PD-5-321-126**

- Juwi R & D Research & Development GmbH & Co. KG  
Energie-Allee 1, 55286 Wörrstadt, Germany *Clip Length: 80.0mm*
- **Modulclip CTS - 70mm M6** ..... **PD-5-321-128**  
Belectric Trading GmbH *Clip Length: 70mm*  
Wadenbrunner Str. 10, 97509 Kolitzheim, Germany
  - **MK-A II M** ..... **PD-5-321-129**  
Jurchen Technology GmbH *Clip Length: 70mm*  
Prinz-Ludwig-Straße 5, 97264 Helmstadt, Germany
  - **Manual Middle Clamp** ..... **PD-5-321-130**  
Clenergy *Clip Length: 80mm*  
75181 Mediterranean Ave, Palm Desert CA, 92211 United States
  - **MMMC80 \ MMEC80** ..... **PD-5-321-133**  
Maruti *Clip Length: 80mm*  
B-69,70 Sector-5 Noida; Uttar Pradesh; India
  - **Modulklammer MK A 80** ..... **PD-5-321-134**  
Belectric Trading GmbH *Clip Length: 70mm*  
Wadenbrunner Str. 10, 97509 Kolitzheim, Germany
  - **MK A80-7** ..... **PD-5-321-135**  
Jurchen Technology GmbH *Clip Length: 80mm*  
Prinz-Ludwig-Straße 5, 97264 Helmstadt, Germany
  - **Clamp BY31-ZY17** ..... **PD-5-321-136**  
Suzhou Akcome *Clip Length: 75.0mm*  
Dongqu Road Economic Development Zone,Zhangjiagang,JiangSu,China 215600
  - **MMMC80 and MMEC80** ..... **PD-5-321-137**  
Maruti *Clip Length: 80.0mm*  
B-69,70 Sector-5 Noida; Uttar Pradesh; India
  - **MK A II M 80 – 7** ..... **PD-5-321-139**  
Jurchen Technology *Clip Length: 80.0mm*  
Prinz-Ludwig-Straße 5, 97264 Helmstadt, Germany
  - **MK A II M 80 – 7** ..... **PD-5-321-140**  
Belectric *Clip Length: 80.0mm*  
Wadenbrunner Str. 10, 97509 Kolitzheim, Germany