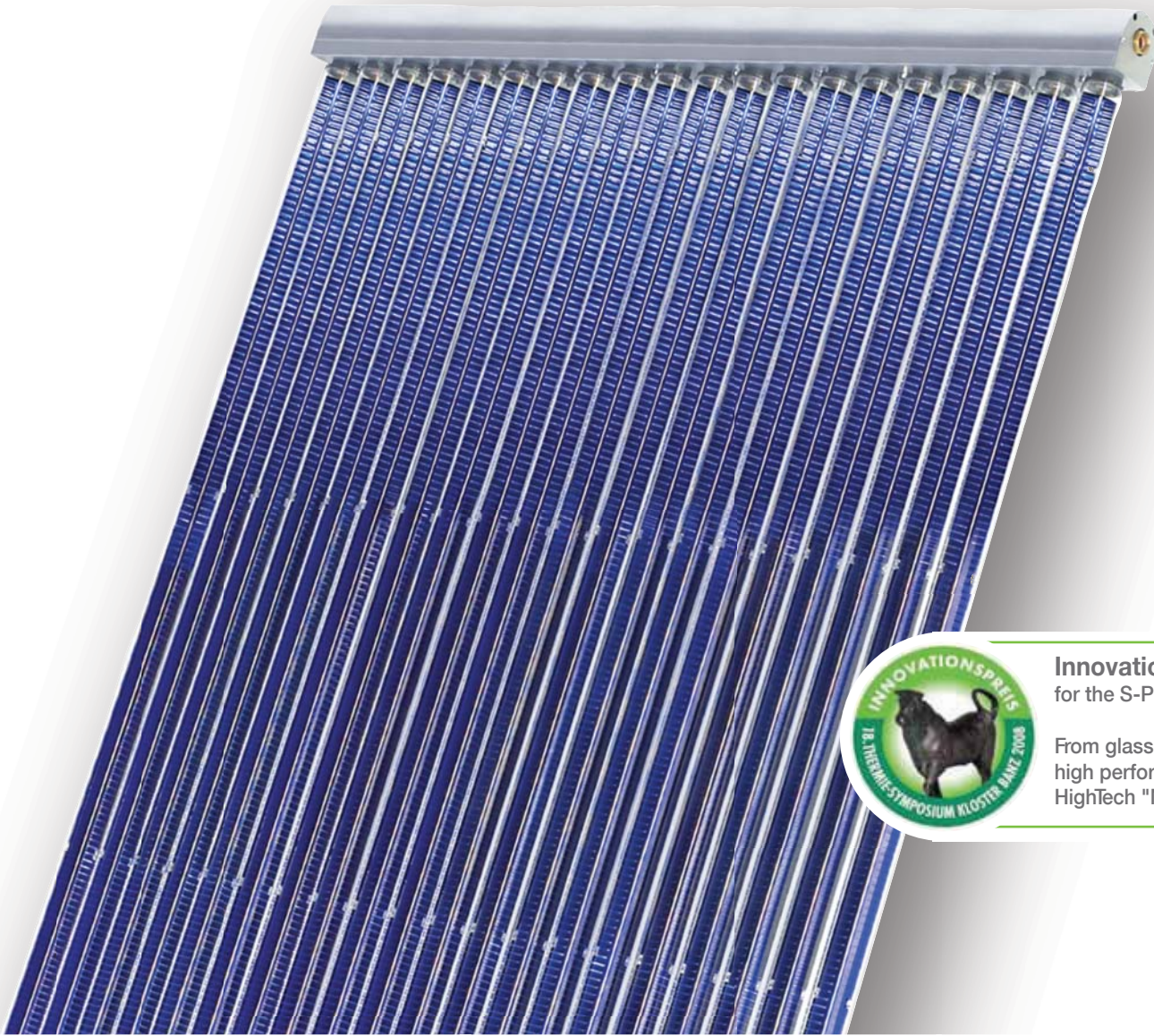


S-Power  
PERFORMANCE SERIES  
Heat Pipe Collectors

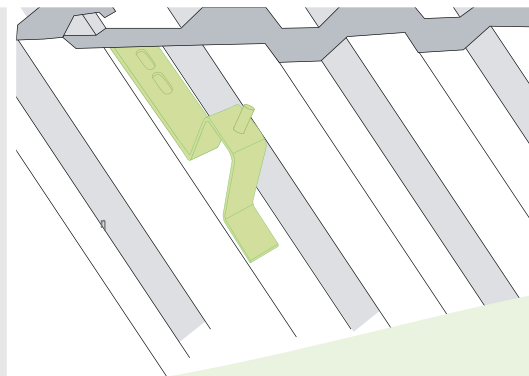
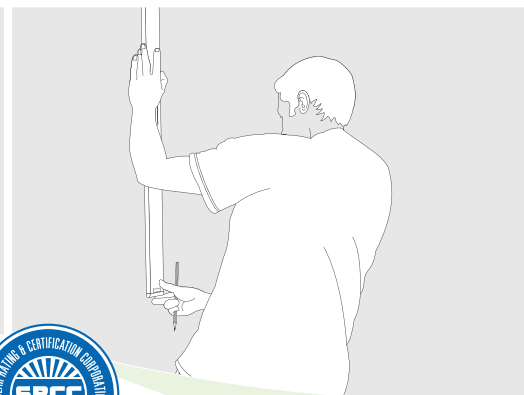
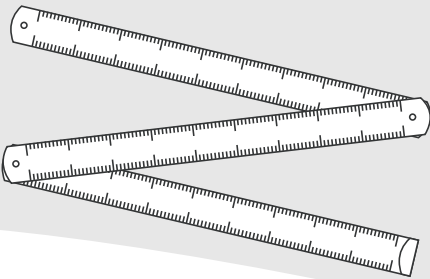
**STIEBEL ELTRON**

Simply the Best



Innovation prize 2008  
for the S-Power vacuum tubes.

From glass factory to finished  
high performance vacuum tubes,  
HighTech "Made in Germany".



QUALITÄTS-  
MANAGEMENT  
Wir sind zertifiziert  
Regelmäßige freiwillige  
Überwachung nach ISO 9001:2000



Installation instructions Heat Pipe

# **STIEBEL ELTRON**

## **Simply the Best**

Prior to installation, please check for updates to this document at

**[www.stiebel-eltron-usa.com/install.html](http://www.stiebel-eltron-usa.com/install.html)**

S-Power Performance Series  
Instruction Manual  
Rev. April 2012

# SAFETY INSTRUCTIONS

## WARNING

To reduce the risk of injury, the user must read and understand the operation manual before installing or using this product.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

## DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

## WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

## CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

## NOTICE

NOTICE is used to address practices not related to personal injury.



This symbol is used when there is a risk of of burning from touching hot surfaces or contact with hot liquid.



This symbol is used when there is a risk of injury from falling or stumbling.



This symbol is used when there is a risk of injury from falling objects.



This symbol is used when there is a risk of injury due to implosion of object if too much pressure, twisting or force impact is applied.



This symbol is used when there is a risk of electric shock due to live voltage



This symbol is used where there is a risk of injury due to a sharp or protruding object.



This symbol is used when there is additional information, advice, or tips available for an object or purpose.

# GENERAL SAFETY RULES

## **WORK AREA** (Especially when working on the roof)

- » Keep the work area clean and well organized.
- » Keep bystanders, children and visitors away from the work area while installing this product. Distractions can cause one to lose control and personal injury can occur.
- » Be aware of, and avoid, any power lines that may be in the vicinity. Avoid using a metal ladder near power lines or exposed energized electrical equipment.
- » Always wear slip resistant (e.g., rubber-soled) shoes that have sufficient traction on the soles.
- » When working on a ladder, try to achieve three points of contact whenever possible.
- » If you need to get tools or supplies onto the rooftop, consider how you will get them up and down safely. Always work with at least one assistant.
- » Ensure that anything placed on the roof cannot fall off and hurt someone. If there is no way to completely and safely secure material that is resting on the roof, then make sure that the ground area is cleared of all people.
- » Get down off of the roof or ladder before you engage in activities that will divert your attention. Use your common sense. Do not talk on your cell phone, eat, drink, or chat unnecessarily while you are on the rooftop or ladder.
- » If it is windy or rainy, delay the project. Working at height with wet ladder steps and on slick surfaces invites unnecessary danger.
- » Never work on the roof when lightning threatens.
- » Even after the rain stops, avoid working on roofing projects. The ground may be muddy or saturated, and wet ground conditions can lead to the ladder slipping or sinking.
- » If you have balance problems or health risks, such as seizures or fainting spells, that increase the dangers of working at height, contact a friend or a professional to complete this part of your project.

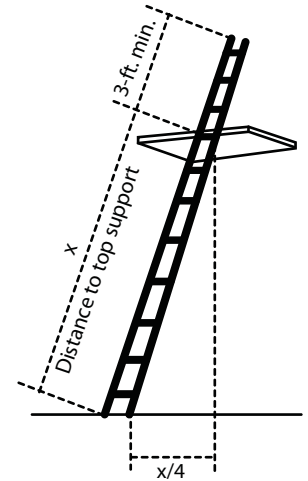
## **Personal Safety**

- » **ALWAYS** wear eye protection to avoid injury to the eyes while using hand or power tools.
- » Wear heat resistant and puncture resistant gloves while handling evacuated tubes or working around potentially hot pipes or fittings.
- » Do not wear loose fitting clothing or jewelry that may get caught in power tools.
- » Installers working below a roof installation should wear an impact resistant hard hat to avoid injury from falling objects.
- » On a steeply pitched roof, be sure to wear a safety harness that is securely tied off to a fall arresting device.

**ALTERATIONS AND CHANGES APART FROM THOSE DESCRIBED IN  
THE INSTRUCTION MANUAL ARE NOT ALLOWED.**

## Installation Safety

- » Always consult local and state building codes and other applicable standards and regulations before beginning a solar collector installation.
- » Adhere to all applicable codes and standards during installation. Special consideration must be given to building code requirements for the penetration of structural members and fire rated assemblies.
- » Ensure that the mounting surface to which the collector(s) will be attached are structurally sound and capable of supporting the load of the collector(s).
- » Read and follow all labels/markings on the ladder. Always inspect the ladder prior to using it. If the ladder is damaged, it must be removed from service and tagged until repaired or discarded.
- » Do not use the top step/rung of a ladder as a step/rung unless it was designed for that purpose
- » Only use ladders and appropriate accessories (ladder levelers, jacks or hooks) for their designed purposes.
- » An extension or straight ladder used to access an elevated surface must extend at least 3 feet above the point of support (see diagram). Do not stand on the three top rungs of a straight, single or extension ladder.
- » The proper angle for setting up a ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface (see diagram).
- » Be sure that all locks on an extension ladder are properly engaged.
- » Do not exceed the maximum load rating of a ladder. Be aware of the ladder's load rating and of the weight it is supporting, including the weight of any tools or equipment.
- » A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement or a barricade must be erected to keep traffic away from the ladder.



## PRODUCT & SAFETY RISKS

This product has been manufactured to provide the highest level of performance and reliability. Nevertheless, there can still be risks associated with installing, using and maintaining this product.

Dangers can arise from

- » Components of the collector become very hot during operation (will burn when touched)
- » Other risks may originate from broken glass (cut injury)
- » Spurting hot fluid and flowing steam (scalding injury)
- » Falling when working on the roof

The Stiebel Eltron S-Power Performance Series HP evacuated-tube solar collector must be installed and put into operation in accordance with this instruction manual. It must be used exclusively for the described purpose. If used other than the described purpose (abusive use), dangers for persons can arise and the collector can be damaged. Misuse of this product can be, for example, filling the collector with other substances than an appropriate heat transfer medium or the installation on surfaces that are not sufficiently stable.

**ALTERATIONS AND CHANGES APART FROM THOSE DESCRIBED IN  
THE INSTRUCTION MANUAL ARE NOT ALLOWED.**

The Stiebel Eltron S-Power Performance Series HP evacuated-tube solar collector must be mounted and operated according to the approved safety rules and technical regulations, of each locale. During assembly, workers must adhere to the respective national regulations for employee protection (e.g. OSHA) and accident prevention. This is especially important when working on the roof.

## Lightning Protection

### **NOTICE**

All electrical equipment with a metal housing must be grounded. This also applies to solar-thermal systems. The pump set, pipes, reservoirs and collectors must be provided with a ground connection, i.e., be connected to earth just like any standard water pipe. Grounding requires a secure conductive contact between the ground point and the collector. The grounding clips can be installed to the collector frame. The solar circuit pipeline system has to be connected to the building's ground over short runs for both the feed and the return lines.

## Handling Glass Tubes

### **⚠ WARNING**

The glass tubes have a vacuum. Damage due to external pressure, loading or twisting, application of concentrated loads or force impact may cause implosion. Flying glass fragments may cause injuries. Only a certified heating contractor or North American Board of Certified Energy Practitioners (NABCEP) certified solar thermal installer should carry out dismantling and disposal. All materials used are recyclable.

## Maintenance

The maintenance of solar systems must be done by licensed heating contractors and relates mainly to the heat transfer medium. The collectors undergo a visual inspection only. They have to be replaced if damaged or if the tubes experience a loss of vacuum.

**Single tubes may be replaced on-site.**

Due to the nano coating on the vacuum tubes, the collector is self-cleaning. If, however, the tubes become dirty, the collector may be cleaned with water.

**DO NOT USE INDUSTRIAL CLEANERS OR ABRASIVE CLEANERS!**

# SAFETY INSTRUCTIONS & REQUIREMENTS FOR ROOFTOP ASSEMBLY

## Risk of Burning

### WARNING

» The metal parts of the collector can become very hot when exposed to the sun even on cloudy days and can cause burns when touched! Do not leave a collector unprotected to the sunlight after unpacking it. Install the roof assembly on a cloudy day and preferably not at noontime or shade the collector with a light blocking material.

» **TAKE THE COLLECTOR OUT OF THE BOX ONLY AFTER ALL FASTENING ELEMENTS ARE ALREADY INSTALLED ON THE ROOF.** If you install multiple panels, remove only one set of collector tubes from the box and assemble one complete collector before you unpack the next.

» After a collector is completely installed and exposed to sunlight the risk of burns from hot metal parts is increased. Use caution when working around the collector and use heat protective gloves when handling metal pipes and connectors associated with the collector.

## Personal Risk of Falling

### WARNING

When working on the roof or climbing up or down ladders or scaffolding there is danger of falling. Please consider the accident prevention regulations (e.g. OSHA) and use appropriate safeguards.

## Personal Risk of Falling Objects

### WARNING

During installations on the roof, there is a danger that tools, assembly equipment or the collector can fall from the roof and injure persons standing below. Barricade off the danger area on the ground before the start of assembly work and warn persons who are nearby to stay out of the work zone.

Make sure that children and bystanders are kept away.

Unauthorized persons are not allowed to climb onto the roof.

### WARNING

If the collector is installed on a roof that is not suitable for the installation, the collector can become loosened. This could lead to damage to the collector and the roof or, if the collector falls from the roof, injuries to someone. Therefore, the collector must only be installed on roofs where it can be properly attached.

## Handling Glass Tubes

### WARNING

The glass tubes have a vacuum. Damage due to external pressure, loading or twisting, application of concentrated loads or force impact may cause implosion. Flying glass fragments can cause injuries.

# WHO IS ALLOWED TO INSTALL SOLAR COLLECTORS?

**AT LEAST TWO PEOPLE ARE REQUIRED FOR THE ROOF INSTALLATION.**

The planning of the installation and the installation on the roof as well as the setup of the Stiebel Eltron S-Power high performance heat pipe collector may only be done by persons who are familiar with and can carry out a proper installation due to their qualification and/or certification.

## SYSTEM PLANNING

The following aspects should be considered when planning a system:

- » What energy will be consumed in what period of time?
- » Will demand/consumption be continuous (weekends, vacation periods)?
- » How much energy will need to be stored so that there is enough usable energy when solar radiation is not available?
- » Will there be any alternative uses such as pool heating, solar cooling, geothermal processes, radiant heating or similar?
- » What is the current feed/return temperature of the heating system?
- » What is the planned orientation of the collector panels, and assembly options?
- » Determine the length, diameter and compositions of pipe(s).

# **STIEBEL ELTRON**

## **Simply the Best**



**Installation instructions for:****STIEBEL ELTRON**  
Simply the Best**S-Power**  
**SP-20**

+

**STIEBEL ELTRON**  
Simply the Best**S-Power**  
**SP-30****General information:**

The tube sets should be transported horizontally. Only up to max. 7 cartons may be stacked on top of one and other. Our installation sets are valid for all snow load zones (except zone 3). In storm areas, special structural analyses must be carried out.

**Work safety information:**

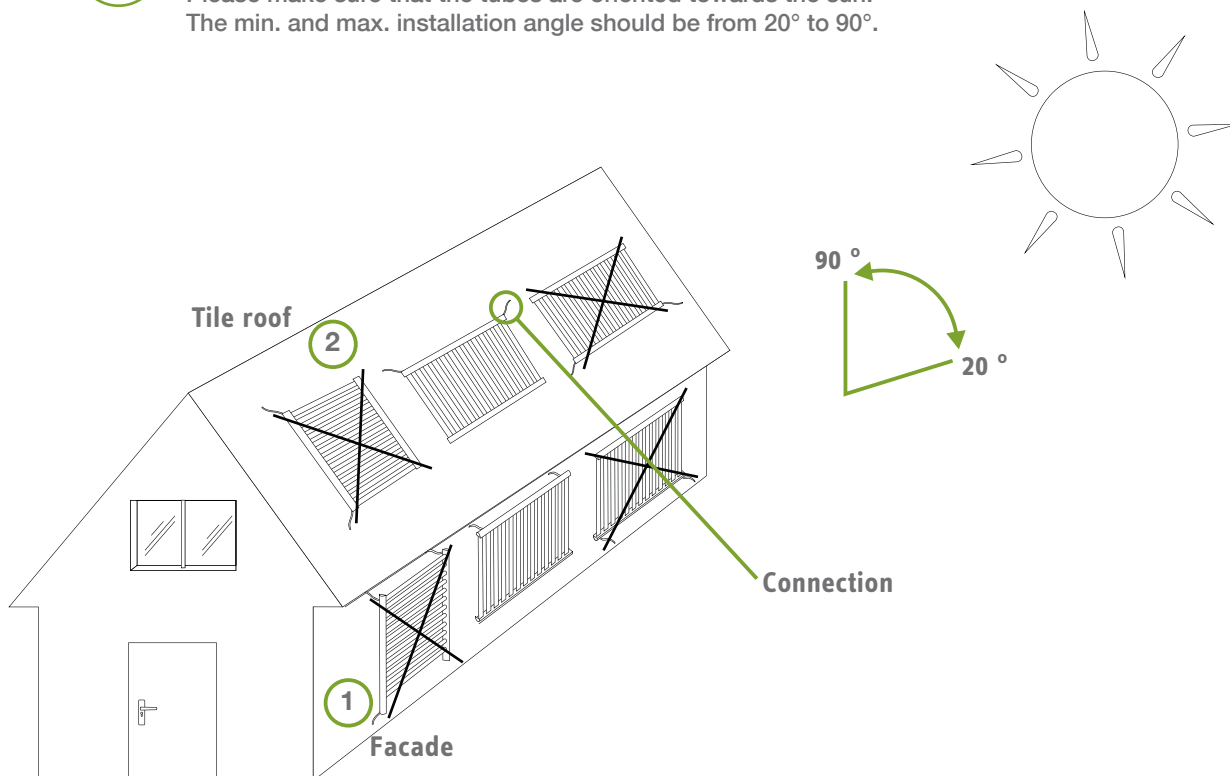
Wear a helmet, hearing protection and protective glasses! Attach fall protection equipment! Handle glass tubes only while wearing gloves (are included).

**Required tools:****Possible installation types:**

Facade, Pitch roof, Folded seam roof, corrugated metal roof

**Caution!**

The collectors are to be installed so that the distributor tube is in the top position. Please make sure that the tubes are oriented towards the sun. The min. and max. installation angle should be from 20° to 90°.



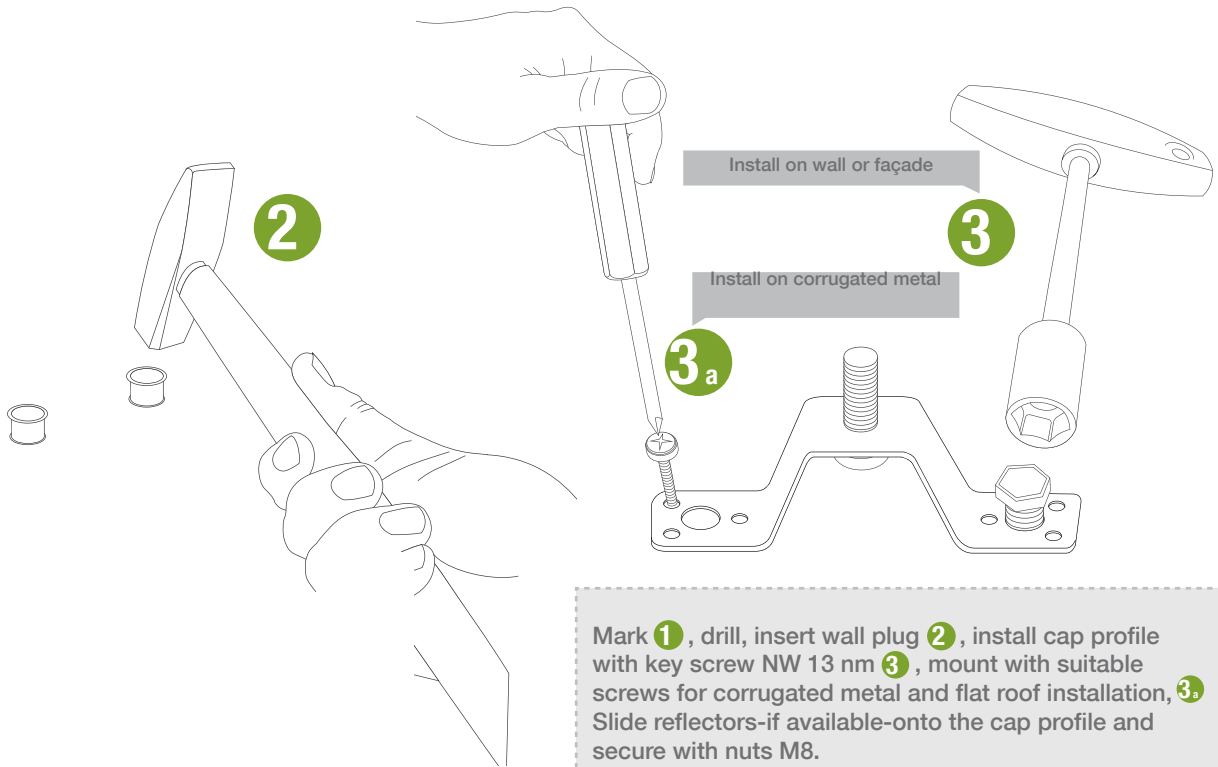
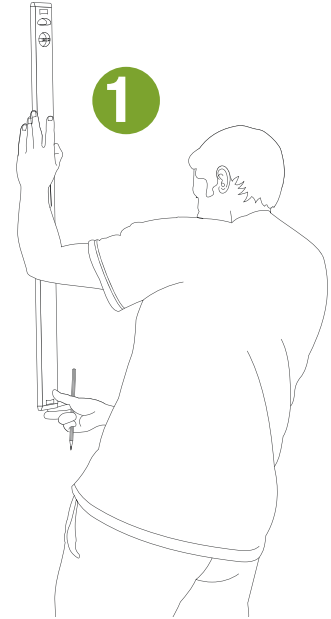
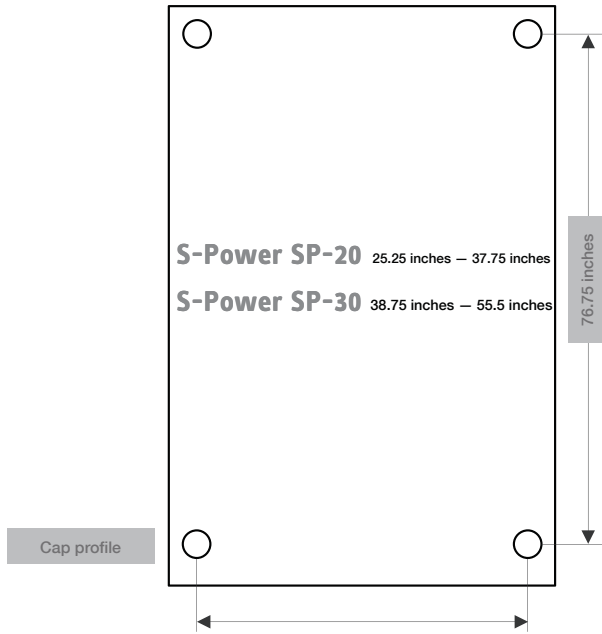
• SP-30

• SP-20

Installation instructions

**i** Set the cap profile in the façade or elevated track.  
For wall/façade installation, the cap profile is to be vertically mounted.

**Wall/façade, flat roof and corrugated metal installation (roof and wall)**



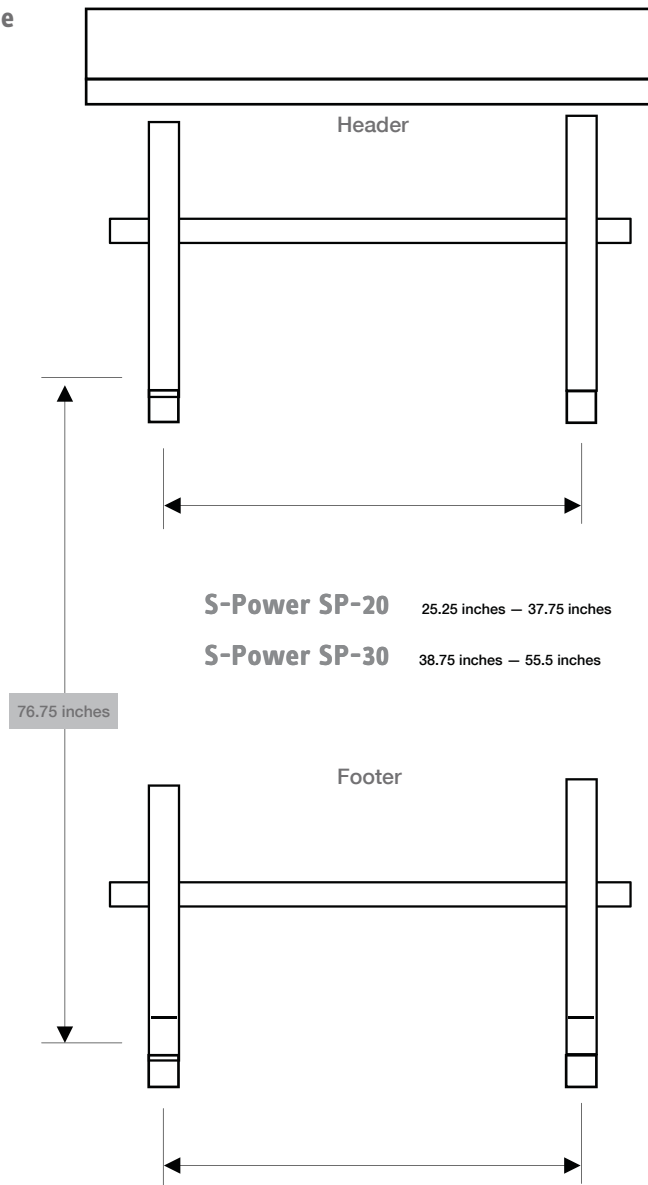
Mark **1**, drill, insert wall plug **2**, install cap profile with key screw NW 13 nm **3**, mount with suitable screws for corrugated metal and flat roof installation, **3a**. Slide reflectors-if available-onto the cap profile and secure with nuts M8.

» **Corrugated metal installation (roof + wall):**

Screw the cap profile onto the trapezoid in using self-cutting drill screws (sealing: Silicone among others). Collector installation same as all other types of fastenings.

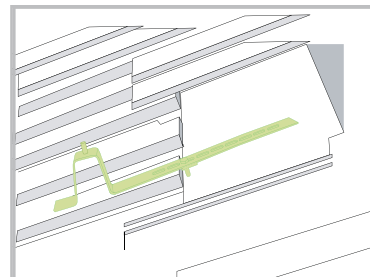
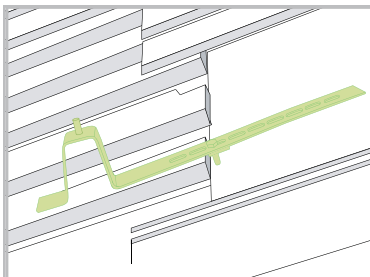
## Installation measurements for the heatpipe collector

» Tiled roof installation:



**S-Power SP-20** 25.25 inches – 37.75 inches

**S-Power SP-30** 38.75 inches – 55.5 inches

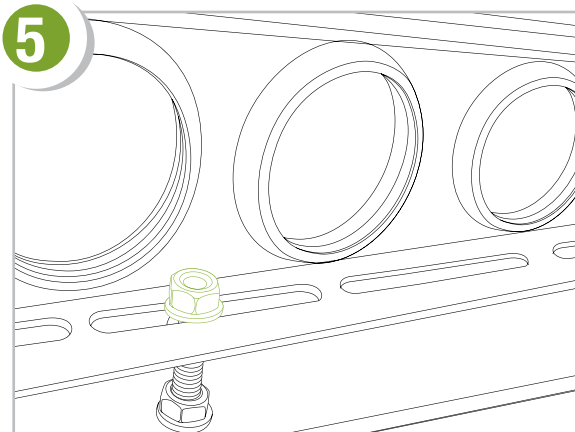
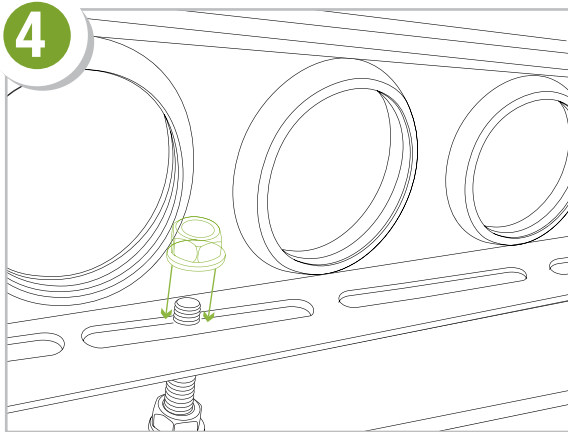


Installation instructions • SP-20 • SP-30

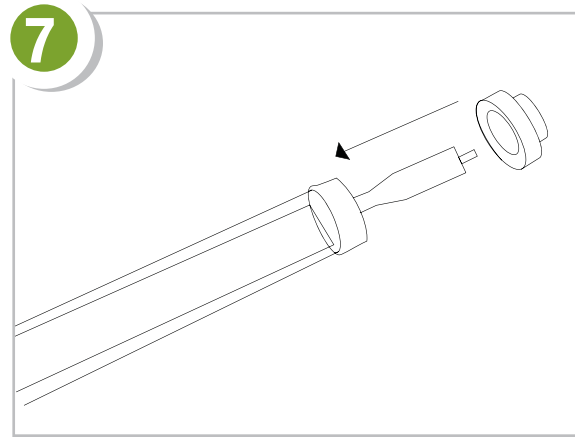
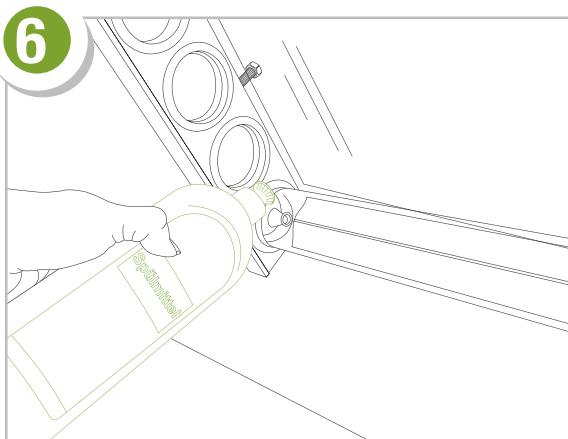
**Install the supporting bracket:**

Attach with Locking nut - screw nut M8. **4+5**

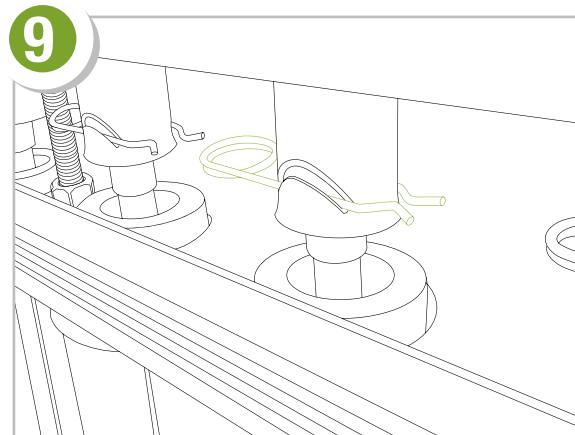
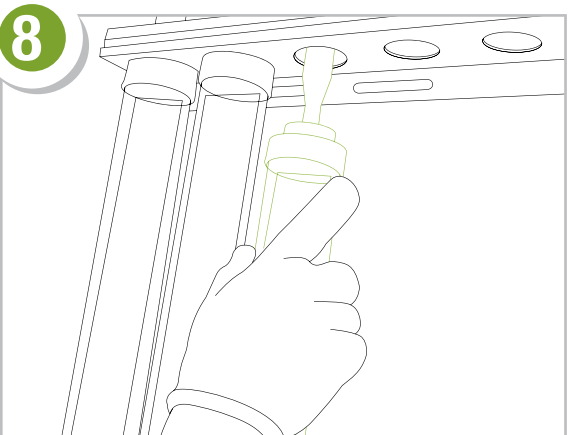
When installing multiple collectors in series, make sure that the o-ring connector is completely inserted into both collectors. Collector casing and drum must be mounted straight and flush with each other.



Insert the Stiebel Eltron S-Power high performance heatpipe tube into the rubber rings, which have to be lubricated beforehand with soap. **6**

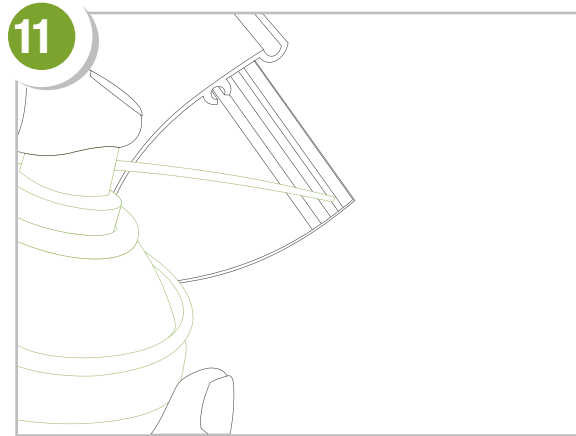
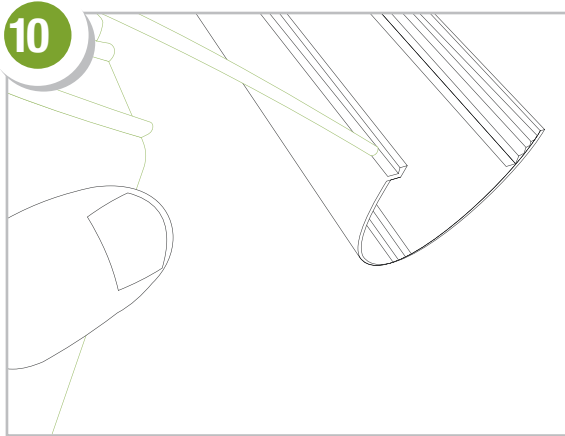
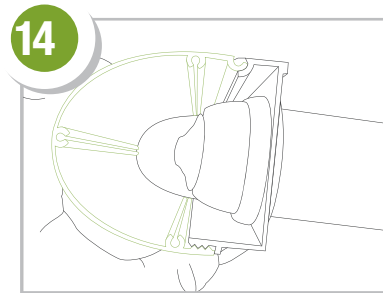
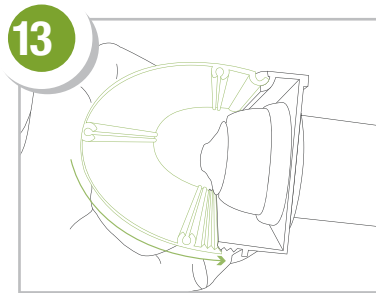
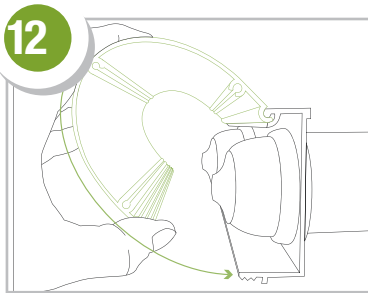


Place the safety rubber ring on top of the glass metal connection. **7** Rotate constantly the s-power high performance heat-pipe tube while inserting into the hole in the collector casing. **8** Insert the tube so the safety rubber of the heatpipe tube touches the end of the collector casing and then retrieve the tube out of the collector casing for 5mm. **9** Stiebel Eltron S-Power high performance heat pipe is now sealed.

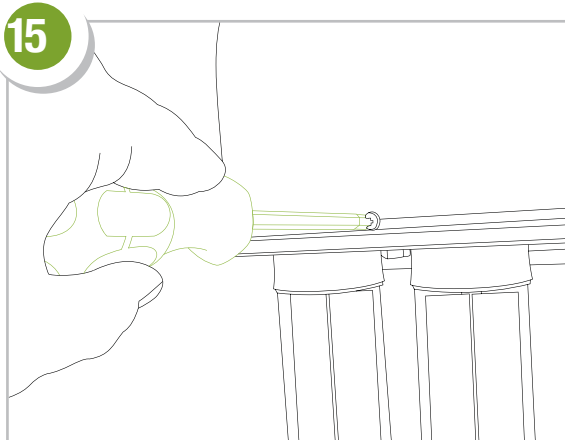


**Mount the end cap and connection tube 10 + 11 :**

Spray the screw-in connection and cogging of the supporting bracket with e.g. WD 40.

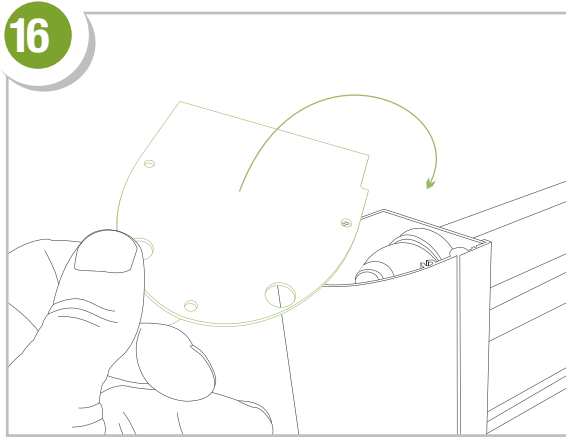
**Footer:****Collector casing:**

Screw upper casing to the supporting bracket. 15

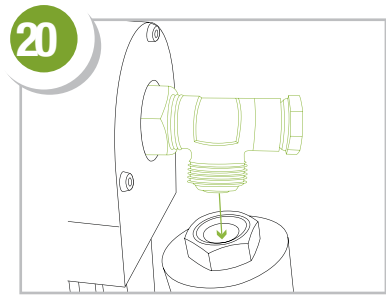
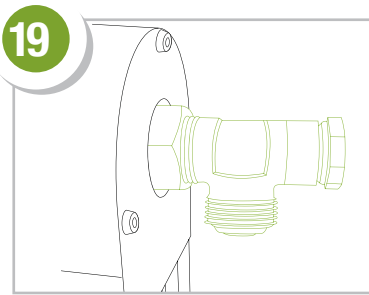
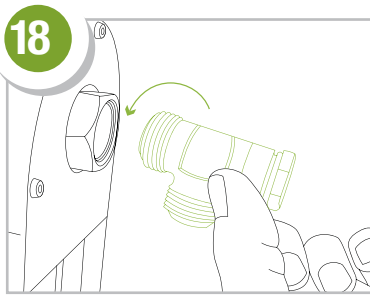
**» Recommendation:**

The casing may be mounted to the supporting bracket even before inserting the tubes, as the tube is lockable by itself.

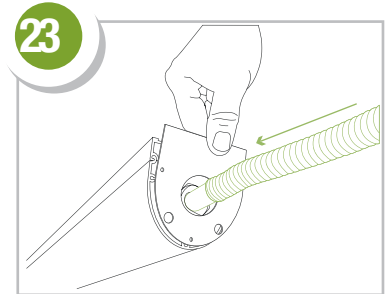
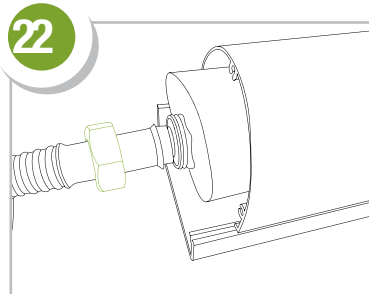
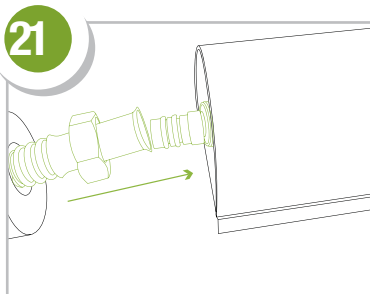
**For all types of installations:**  
Mount the end cap. 16 + 17



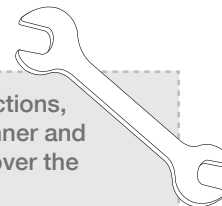
**i** **Caution!** The euro-conus connector or the sensor T-piece should always be mounted on the collector discharge side. For laterally-inverted connections, the adapter (Art.-No. 791069) should be used. 18 + 19 + 20



On the left hand side: lubricate the o-ring of the collector connection with silicone grease, connect the corrugated hose, push the side cap over the corrugated hose and mount. Following this pull the insulation over the hose. 21 + 22 + 23



Screw on the connections, pull tight with a spanner and push the insulation over the corrugated hose.



## **WARNING! HANDLE THIS PRODUCT WITH CARE.**

DO NOT ATTEMPT TO INSTALL THIS PRODUCT IF YOU HAVE NOT READ THE INSTALLATION MANUAL AND ARE NOT EXPERIENCED WITH SOLAR THERMAL COLLECTORS MADE BY STIEBEL ELTRON.

YOU SHOULD ALWAYS HIRE AN EXPERIENCED NABCEP CERTIFIED SOLAR THERMAL INSTALLATION CONTRACTOR. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR THE MECHANICAL STABILITY AND STRENGTH OF ALL INSTALLED INTERFACE CONNECTIONS TO THE BUILDING/BUILDING'S ENVELOPE. IN ADDITION TO COMPLYING WITH ENGINEERING STANDARDS, LOCAL REGULATIONS AND BUILDING CODES, AND INDUSTRY STANDARDS, PLEASE HAVE YOUR NABCEP CERTIFIED SOLAR THERMAL INSTALLATION CONTRACTOR CAREFULLY READ THE SAFETY INSTRUCTIONS BEGINNING ON PAGE 4 OF THIS DOCUMENT.

FAILURE TO INSTALL THIS PRODUCT IN ACCORDANCE WITH THESE INSTALLATION INSTRUCTIONS AND/OR , FAILURE TO COMPLY WITH ENGINEERING STANDARDS, LOCAL BUILDING CODES, AND INDUSTRY STANDARDS COULD LEAD TO DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE. ONCE INSTALLED AND OPERATING, DO NOT TOUCH ANY METAL COMPONENTS OF THIS PRODUCT OR ANY EXPOSED METAL COMPONENTS OF THE INSTALLATION. ANY EXPOSED METAL COMPONENT IN THE ACTIVE COLLECTOR LOOP CAN BECOME VERY HOT WHICH CAN LEAD TO SERIOUS BURNS! PLEASE READ ALL WARNINGS BEGINNING ON PAGE 4 OF THIS DOCUMENT.

# DISCLAIMER

## **WARRANTY LIMITATION AND EXCLUSION.**

SELLER WILL HAVE NO FURTHER WARRANTY OBLIGATION UNDER THIS AGREEMENT IF THE EQUIPMENT IS SUBJECTED TO ABUSE, MISUSE, IMPROPER INSTALLATION, NEGLIGENCE OR ACCIDENT, OR IF YOU FAIL TO FOLLOW THE INSTRUCTIONS SET FORTH IN THE MANUAL WHICH ACCOMPANIES THIS PRODUCT, OR IF YOU FAIL TO PERFORM ANY OF THE DUTIES SET FORTH ABOVE AND BELOW.

## **DISCLAIMER OF UNSTATED WARRANTIES.**

THE WARRANTY PRINTED ABOVE IS THE ONLY WARRANTY APPLICABLE TO THIS PURCHASE. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.

## **LIMITATION OF LIABILITY.**

IT IS UNDERSTOOD AND AGREED THAT SELLER'S LIABILITY WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, IN NEGLIGENCE OR OTHERWISE SHALL NOT EXCEED THE RETURN OF THE AMOUNT OF THE PURCHASE PRICE PAID BY PURCHASER AND UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES. THE PRICE STATED FOR THE EQUIPMENT IS A CONSIDERATION IN LIMITING SELLER'S LIABILITY. BUYER ASSUMES ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO PERSONS OR PROPERTY OF BUYER OR OTHERS ARISING OUT OF USE OR POSSESSION OF ANY MATERIAL SOLD HEREUNDER. NO ACTION, REGARDLESS OF FORM, ARISING OUT OF THE TRANSACTIONS UNDER THIS AGREEMENT MAY BE BROUGHT BY PURCHASER MORE THAN ONE YEAR AFTER THE CAUSE OF ACTION HAS ACCRUED.

## **INDEMNITY AND HOLD HARMLESS.**

WHEN PURCHASER, IN THE ORDINARY COURSE OF BUSINESS, HAS PERSONS USING ANY EQUIPMENT TO WHICH THE PRODUCTS SUBJECT TO THIS SALE ARE INSTALLED, PURCHASER AGREES TO AND SHALL INDEMNIFY, DEFEND, AND HOLD HARMLESS SELLER, ITS EMPLOYEES AND AGENTS FROM AND AGAINST ALL CLAIMS BROUGHT BY PARTIES OTHER THAN THE PARTIES TO THIS AGREEMENT. THIS PROVISION SHALL APPLY TO ALL CLAIMS, REGARDLESS OF CAUSE, INCLUDING SELLER'S PERFORMANCE OR FAILURE TO PERFORM, AND INCLUDING DEFECTS IN PRODUCTS, DESIGN, INSTALLATION, MAINTENANCE, OPERATION OR NON-OPERATION OF THE PRODUCTS, WHETHER BASED UPON NEGLIGENCE, ACTIVE OR PASSIVE, WARRANTY, OR STRICT PRODUCT LIABILITY ON THE PART OF SELLER, ITS EMPLOYEES OR AGENTS, BUT THIS PROVISION SHALL NOT APPLY TO CLAIMS FOR LOSS OR DAMAGE SOLELY AND DIRECTLY CAUSED BY AN EMPLOYEE OF SELLER WHILE ON PURCHASER'S PREMISES.

# **STIEBEL ELTRON**

Simply the Best



We are available for questions concerning the installation of our high quality vacuum tube collectors at any time:

Stiebel Eltron, Inc.  
17 West Street  
West Hatfield, MA 01088  
Phone: 800.582.8423  
Fax: 413.247.3369

E-mail: [info@stiebel-eltron-usa.com](mailto:info@stiebel-eltron-usa.com)  
Internet: [www.stiebel-eltron-usa.com](http://www.stiebel-eltron-usa.com)