RHEINZINK®

GUTTER SYSTEMS

Gutter Installation Instructions
Using Soldering Technique

PROCESSING AND INSTALLATION

This brochure contains illustrated step by step instructions for the installation and soldering of RHEINZINK Gutter Systems utilizing the Snap-Lock Bracket System.

Helpful Hints Pertaining to Soldering Techniques

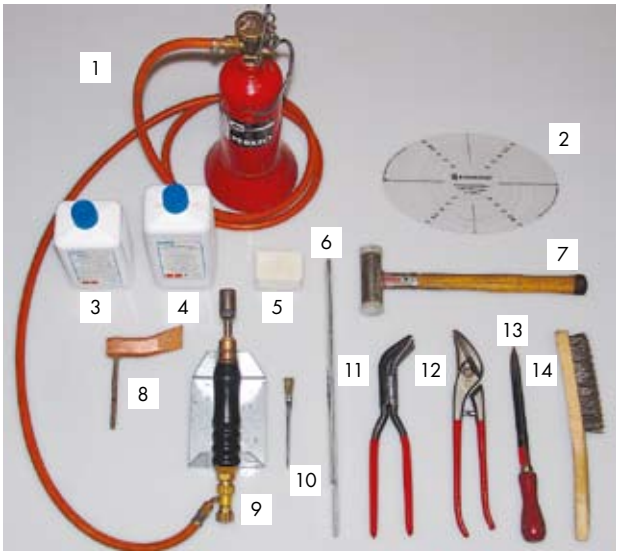
The following must be taken into account when soldering RHEINZINK:

- The contact surfaces of the soldered joint must be free of dust, dirt and moisture.
- Use a 350 g min. hammer shaped soldering bit; 500 g is ideal.
- The temperature of the soldering iron should be ~ 250 °C. If the temperature is in the correct range, you should see light smoke formation when the soldering iron is in contact with the sal ammoniac block.
- For optimum temperature regulation of the soldering iron, propane gas is recommended.
- "ZD-pro" flux by Felder is recommended.*
- 40/60 or 50/50 solder with an antimony content of < 0.5 % weight (L-Pb Sn 40 (Sb) or L-Pb Sn 50 (Sb)) as per ISO 9453 is recommended.
- Adjacent gutters should be overlapped a distance of 10-15 mm to create a proper solder joint.
- The gap between the overlapping parts must not exceed 0.5 mm.
- The gutter must be soldered the entire length of the gutter overlap.

For further information about RHEINZINK Gutter Systems and Soldering Instructions visit **www.rheinzink.com**

* "ZD-pro" is the recommended flux as it was formulated for use with RHEINZINK. While other fluxes will work, they should first be tested on a scrap piece of RHEINZINK to ensure that a sufficient bond is achieved.

Tools and Materials



1 Small Gas Bottle and Hose
2 Gutter Outlet Template
3 Flux "ZD-pro" by Felder
4 Solvent-pro by Felder
5 Sal Ammoniac Block
6 Solder Bar
7 Plastic Faced Hammer
8 Hammer Shaped Soldering Bit
9 Soldering Iron on Support
10 Brush for Flux
11 Seaming Plier, 45° angled
12 Combination Tin Snip
13 Deburring Tool
14 Wire Brush

Step by Step Installation Instructions

1. Mounting the Gutter Brackets

With the innovative RHEINZINK Snap-Lock Bracket System, RHEINZINK offers the right solution for most eave applications. The Snap-Lock Bracket System can be used for eaves with vertical fascia boards, with alignment tolerances of up to 2 cm.

Installation is quick and easy! Furthermore, there are many advantages when it comes to remodeling or renovating, as the roof does not have to be altered in order to accommodate installation of the Snap-Lock Bracket System. For further information on additional bracket systems, please visit **www.rheinzink.com**.

1.1 Mounting the RHEINZINK Snap-Lock Bracket System

The installation height of the gutter should be such that the projected extension of the roof surface runs into the gutter. In heavy snowfall areas, it should be installed somewhat lower, so that the snow can slide over the gutter.

Start the installation by locating the highest point of the gutter. The extension of the roof surface (see pencil in illustration) should extend into the gutter.

Fasten the snap-lock fixing rail with a slope of 1-3 mm/m. Mount the rail with the longer leg at the bottom.

Mount adjacent rails with a gap of 3-5 mm to accommodate linear thermal expansion.

Locate the gutter brackets at a maximum spacing of 90 cm.

Lock each bracket into place by twisting it 90 degrees clockwise.

2. Mounting the Halfround Gutter

The upper gutter section should lap on top of the lower gutter section. For this reason, gutter installation should always begin at the gutter outlet (the lowest point of the gutter) and continue upstream from there!

2.1 Preparing the Cut Out for the Gutter Plug-In Outlet

Mark the exact location of the cut out using the RHEIN-ZINK Gutter Outlet Template. Align the centerline of the template at the lowest point of the gutter.

Cut out the opening for the gutter outlet.

Create a drip edge by bending a 5 mm edge toward the outside of the gutter.

Insert the gutter into the snap-lock brackets.

Snap the gutter bead onto the nose of the snap-lock bracket at the front.

In the photo above, the gutter has been properly snapped into place.

2.2 Inserting the Plug-In Outlet

Hook the Plug-In Outlet into the gutter bead.

Bend the rear tabs ...

... around the water check at the back of the gutter.

2.3 Soldering Quarter Ball Stopends

Mark the 10 mm wide solder joint overlap.

Cut away the rear water check in the overlap area.

The notch should be 10 x 10 mm.

Apply flux to the contact surfaces of the soldered joint.

Twist the stopend into place.

Apply flux to the overlap area.

Attach the stopend by tack soldering.

Solder the entire length of the overlap. From the gutter bead to the water check.

Clean the soldered joint with a damp cloth. This will remove flux residue and carbon.

2.4 Attaching the Gutters by Soldering

Apply “ZD-pro” flux...

...to the contact surfaces of the soldered joint. If shortened gutter pieces are used, be sure to debur cut edges beforehand!

Connect the gutter pieces with an overlap of 10-15 mm. Insert and rotate the gutter bead...

...and lock the water check.

Fasten the gutter by snapping the gutter bead onto the snap-lock bracket.

Apply "ZD-pro" flux to the soldered joint overlap.

Begin soldering the gutter joint at the gutter bead and exert pressure while slowly drawing the soldering iron over the joint.

Continue on the soldered joint...

... up to the water check.

Clean the soldered joint with a damp cloth. This will remove any flux residue as well as carbon.

Inspect the soldered joint. The gutters should be joined securely and the solder should be visible on the back side throughout the entire length of the soldered joint!

2.5 Installing Expansion Elements

Expansion elements must be installed at a minimum interval of 15 m along the entire length of the gutter, in order to accommodate thermal expansion. Measuring from gutter corners and downpipes, an expansion element must be installed at the halfway point 7.50 m!

Slide on...

... the loose gutter bead cap.

Join the gutter pieces with an overlap of 15-20 mm. Twist in the gutter bead...

... and overlap the water check.

Apply "ZD-pro" flux...

...to the contact surfaces of the soldered joint.

Insert the expansion element in the center above the gutter overlap. If required, reshape the expansion elements to correspond to the gutter profile.

Apply the flux to the overlap area.

Draw the soldering iron slowly over the joint while applying pressure. Solder the expansion element on both sides...

...across the entire width.

Remove flux residue and carbon with a damp cloth. The expansion element should now be securely connected and watertight.

Roll the gutter bead cap over the edge of the expansion element.

Fasten the gutter bead cap by soldering it on one side only! The cap prevents rainwater from getting in between the expansion element and the gutter.

2.6 Installing the Eaves Profile

Fasten the eaves profile with roofing nails as illustrated. Eave flashing pieces should overlap each other by a minimum of 50 mm.
Tip: Fold up ends of eaves profile at verge approx. 10 mm at right angles.

Drive-in the roofing nails at staggered locations at horizontal intervals of 100 mm.

3. Installation of Downpipes

3.1 Pipe Bends

Slide the pipe bend onto the plug-in outlet. The steel tabs prevent the bend from slipping.

Determine the length of the piece of straight pipe so that the vertical section of downpipe is a minimum of 20 mm from the wall.

Insert expanded end of the downpipe over the pipe bend...

...add the second bend.

3.2 Installation of the Universal Downpipe Bracket

Once the Universal Downpipe Bracket has been mounted, it is hardly visible. The result is a series of downpipes with a clean and elegant appearance.

Note: The Universal Downpipe Bracket comes with a lightening rod clip. However, use of the lightening rod clip may not be necessary in all applications.

Hook in the Universal Downpipe Bracket.

Mark the position of the screw.

Fasten the screw.

Fasten the Universal Downpipe Bracket onto the screw.

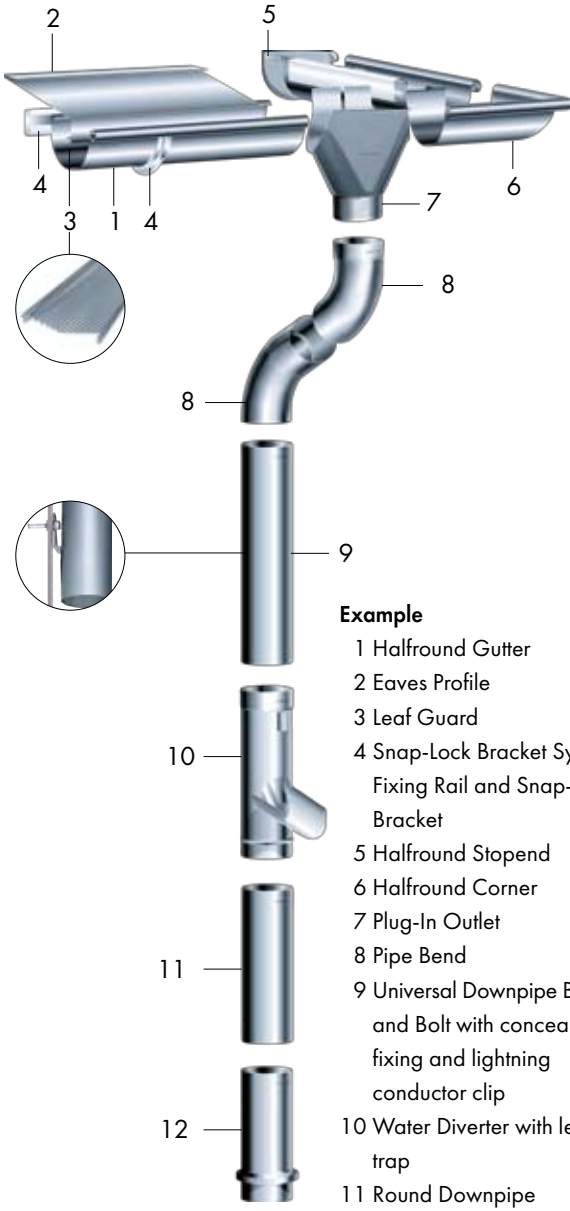
Connect the next downpipe component by sliding on the expanded pipe end.

4. Using RHEINZINK Adaptors

If downpipes without factory expanded ends are used, RHEINZINK Adaptors can be used to provide the connections. Alternatively, pipe ends can also be expanded by using an pipe expander. (visit www.rheinzink.com)

Insert the downpipe adaptor with the expanded end toward the top.

Insert downpipes together as per usual.



Example

1 Halfround Gutter
2 Eaves Profile
3 Leaf Guard
4 Snap-Lock Bracket System Fixing Rail and Snap-Lock Bracket
5 Halfround Stopend
6 Halfround Corner
7 Plug-In Outlet
8 Pipe Bend
9 Universal Downpipe Bracket and Bolt with concealed fixing and lightning conductor clip
10 Water Diverter with leaf trap
11 Round Downpipe high-frequency welded
12 Cover sleeve for connection to underground drainage*

** Alternatively a Pipe Bend (Shoe) for ground level drainage*

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