



**RHEINZINK®**

**RHEINZINK® - GUTTER SYSTEMS**

**Gutter Installation Instructions**



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

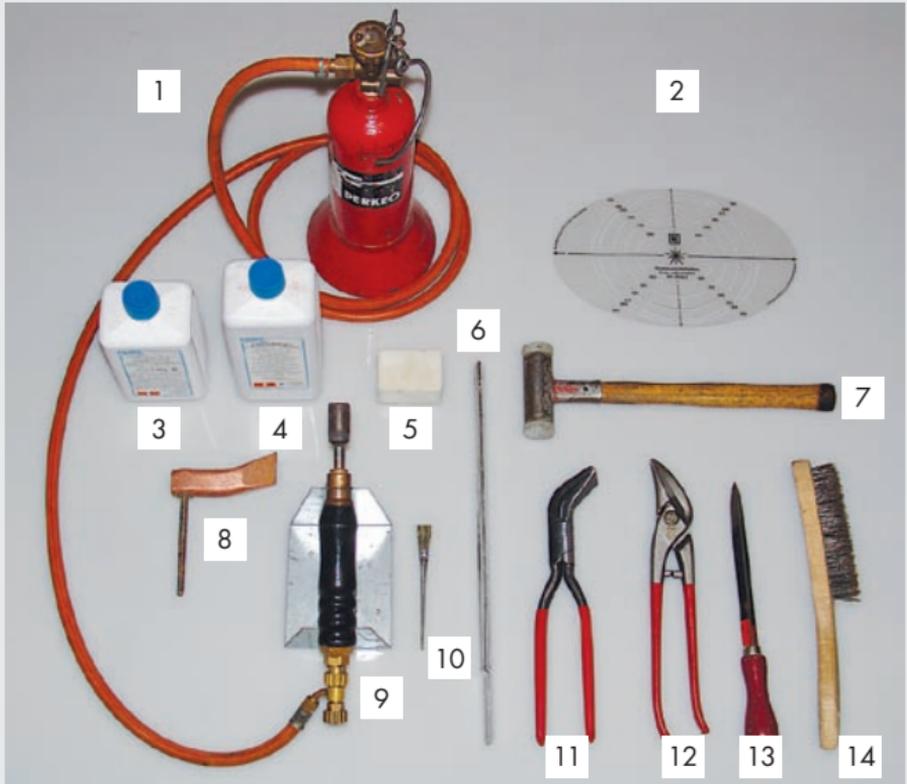
The following must be taken into account when soldering RHEINZINK®:

- The contact surfaces of the soldered joint must be free of dust, dirt and moisture.
- Use a 3/4 lb (350 g) min. hammer shaped soldering bit; 1.1 lb (500 g) is ideal.
- The temperature of the soldering iron should be ~480 °F (~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 3/8" to 5/8" (10-15 mm) to create a proper solder joint.
- The gap between the overlapping parts must not exceed 0.020" (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](http://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. For "ZD-pro" distributors, please visit the website listed above.

## 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 RHEIN-ZINK® Snap-Lock Bracket System, RHEINZINK now 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 7/8" (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](http://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.



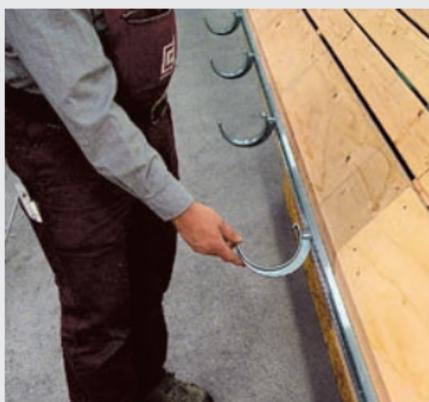
Start the installation by locating the highest point of the gutter. The extension of the roof surface (see pencil in illustration) should extend into the gutter.



Fasten the mounting rail with a slope of  $1/8'' - 3/8''$  per  $10'-0''$  ( $1-3$  mm/m). Mount the rail with the longer leg at the bottom.



Mount adjacent rails with a gap of  $1/8''$  to  $1/4''$  ( $3-5$  mm) to accommodate linear thermal expansion.



Locate the gutter brackets at a maximum spacing of  $3'$  ( $90$  cm).



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

## 2. Mounting the Half Round Gutter

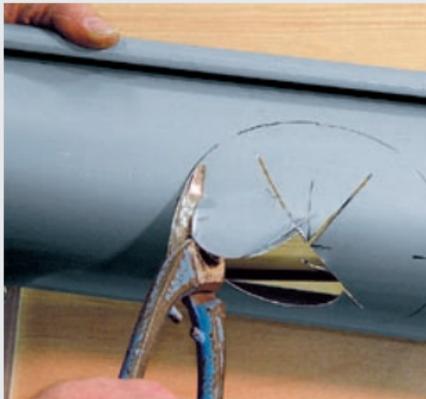
The upper gutter section should lap on top of the lower gutter section.

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 RHEINZINK® Gutter Outlet Template. Align the centerline of the template at the lowest point of the gutter.



Cut out the opening for the gutter outlet. The outlet hole should be  $3/16$ " (5 mm) inside the oval drawn with the template.



Create a drip edge by bending the  $3/16$ " (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 Spherical End Caps



Mark the 3/8" (10 mm) wide solder joint overlap.



Cut away the rear water check in the overlap area.



The notch should be 3/8" x 3/8" (10 x 10 mm).



Apply flux to the contact surfaces of the soldered joint.



Twist the end cap into place.



Apply flux to the overlap area.



Attach the end cap 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 3/8" - 5/8" (10-15 mm). Insert and rotate the gutter bead...



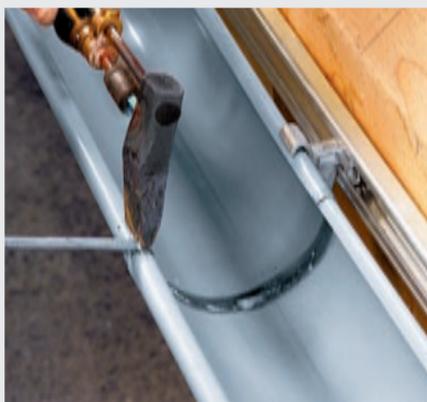
...and lock the water check.



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 Joints

Expansion joints must be installed at a minimum interval of 50' (15 m) along the entire length of the gutter, in order to accommodate thermal expansion. Measuring from gutter miters and down spouts, an expansion joint must be installed at the half-way point 25' (7.50 m)!



Slide on...



...the loose gutter bead cap.



Join the gutter pieces with an overlap of  $5/8"$  -  $7/8"$  (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 joint in the center above the gutter overlap. If required, reshape the expansion joints 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 joint on both sides...



...across the entire width.



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



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



Fasten the gutter bead cap by soldering it on one side only! The cap prevents rain-water from getting in between the expansion joint and the gutter.

## 2.6 Installing the Drip Edge

Fasten the drip edge with roofing nails as illustrated. Eave flashing pieces should overlap each other by a minimum of 2" (50 mm).



Drive-in the roofing nails at staggered locations at horizontal intervals of 4" (100 mm).

### 3. Installation of Downspouts

#### 3.1 Installation of Elbows



Slide the elbow onto the plug in outlet. The steel tabs prevent the elbow from slipping.



Determine the length of the piece of straight pipe so that the vertical section of downspout is a minimum of  $7/8$ " (20 mm) from the wall.



Insert expanded end of the downspout over the elbow...



...add the second elbow.

### 3.2 Installation of the Hidden Downspout Hanger

Once the Hidden Downspout Hanger has been mounted, it is hardly visible. The result is a series of downspouts with a clean and elegant appearance.

Note: The Hidden Downspout Hanger comes with a lightning rod clip. However, use of the lightning rod clip may not be necessary in all applications.



Hook in the Hidden Downspout Hanger.



Mark the position of the screw.



Fasten the screw.



Fasten the Hidden Downspout Hanger onto the screw.



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

#### 4. Using RHEINZINK® Adapters

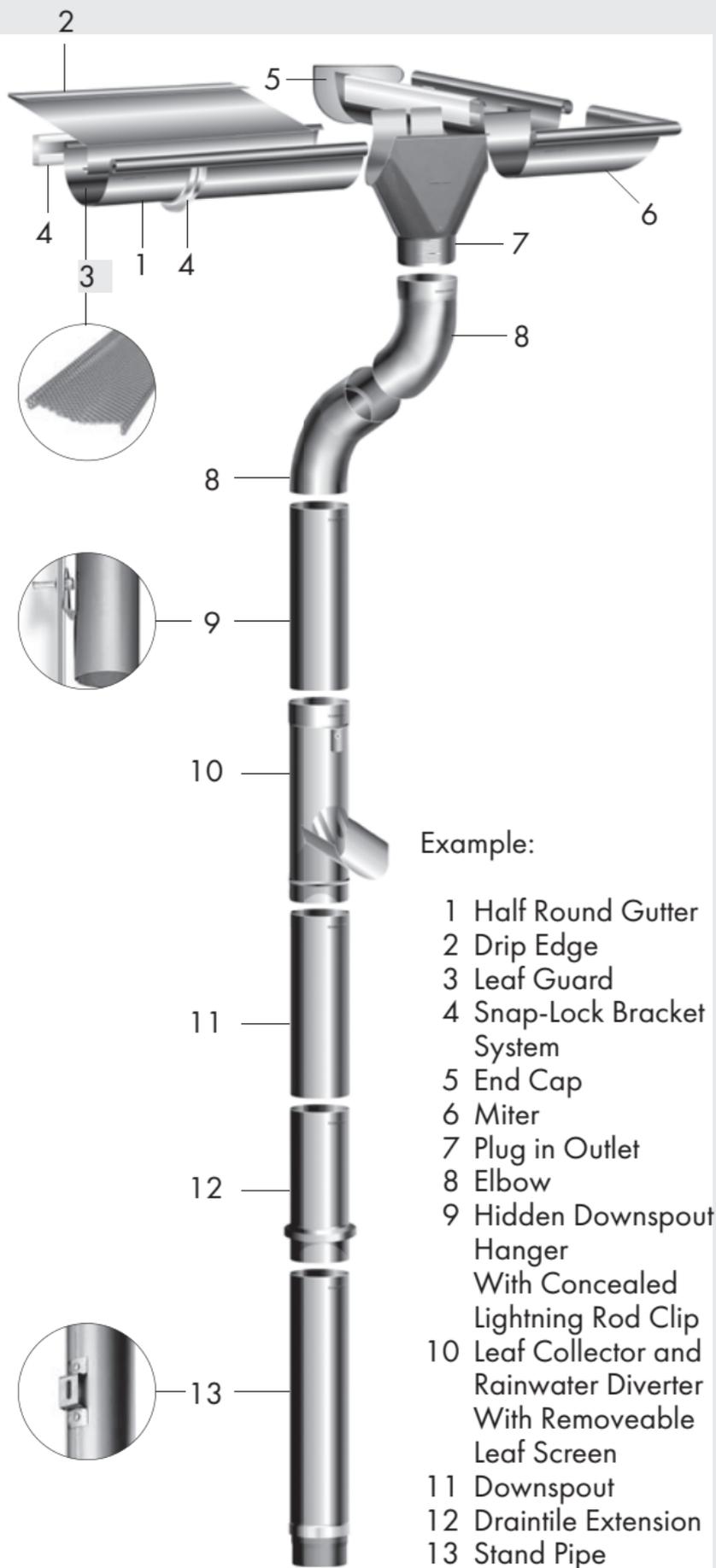
If downspouts without factory expanded ends are used, RHEINZINK® Adapters can be used to provide the connections. Alternatively, pipe ends can also be expanded by using an expanding tool. (visit [www.rheinzink.com](http://www.rheinzink.com))



Insert the downspout adapter with the expanded end toward the top.



Insert downspouts together as per usual.





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