



# INSTALLATION INSTRUCTIONS

## For Sanitary Type: ZAN, RLPS, URAS and RAUS Series

### USERS RESPONSIBILITY

- a) To read the complete instructions before attempting to install the rupture disk and holder assembly. It is the users responsibility to establish appropriate safety, health and training of the personnel installing, servicing or working in an area where rupture disk assemblies are in use.
- b) For the design of adequate venting and installation of adequate vent piping or directional flow after rupture occurs with the rupture disk as intended. When size is specified, ZOOK Enterprises, LLC, ZOOK Europe Ltd. or ZOOK Canada Inc. assumes that adequate provisions have been made by the purchaser and/or user for proper venting of a system to relieve the specific pressure.
- c) To specify the burst pressure rating at the coincident temperature at which the rupture disk is to be used. A rupture disk is a temperature sensitive device. The burst pressure of the rupture disk is directly affected by its exposure to the coincident temperature. Failure to utilize a rupture disk at the specified coincident temperature could cause premature failure or overpressurization of the system
- d) To locate the rupture disk where people or property will not be exposed to the system discharge in the event of rupture. Particles may discharge when the rupture disk ruptures. These particles may be part of the rupture disk itself, or other environmental matter in the system. It is the user's responsibility to ensure that the particles are directed to a safe area to prevent personnel injury or property damage.
- e) To vent toxic or flammable fumes to a safe location to prevent personnel injury or property damage.
- f) To provide adequate piping support to absorb recoil/reaction forces when the disk ruptures.
- g) For the proper installation of rupture disk device into a system. Improper installation and physical damage resulting therefrom, including, but not limited to, damage resulting from leakage, improper torquing, and/or failure to follow installation instructions

### SAFETY PRECAUTIONS BEFORE INSTALLATION

- a) Rupture disk service life is affected by severe pressure to vacuum cycles, corrosion, temperature variations, creep, metal fatigue, and physical damage. These conditions can derate the rupture disk to a lower pressure. Accordingly the user should be prepared to handle a premature failure of the rupture disk. There is no guarantee of rupture disk service life.
- b) To avoid costly down time, ZOOK recommends annual replacement of rupture disks and the user maintain three (3) spare rupture disks in stock for each installation. The number of spares required will ultimately be determined by the service conditions and the installation history.
- c) The media or other environmental conditions should not allow for any build-up or solidification of media on the rupture disk. This may increase the burst rating of the rupture disk.
- d) ZOOK rupture disks, when installed in their respective holders correctly, will provide a very good seal for liquids and most gases or vapors. However, ZOOK Enterprises, LLC, ZOOK Europe Ltd., or ZOOK Canada Inc. cannot guarantee the leakage rate of the disk seal without prior knowledge of the requirement and details of the piping layout. Consult ZOOK Enterprises, LLC, ZOOK Europe Ltd., or ZOOK Canada Inc. for guidance if leakage is critical to the installation.
- e) ZOOK Enterprises, LLC, ZOOK Europe Ltd. or ZOOK Canada Inc. standard Terms and Conditions of Sale apply unless otherwise stated in writing by the manufacturer.
- f) Recommended torque values do not consider piping stress or alignment.

### INSPECTION AND PREPARATION – SANITARY FERRULES & NA CONNECTORS

- a) ZOOK sanitary series rupture disks are designed and tested for use in standard Tri-Clover® 14MPW tank welding ferrules, 13MHHM clamp and NA Connectors or equivalent connections. Consult the factory for alternate standards and designs.
- b) **New Installation**
  - 1) Carefully unpack the Sanitary ferrules or NA Connectors and inspect the seat area for scratches, dents, nicks or dirt. Flaws may adversely affect proper sealing and bursting accuracy.
  - 2) For welded installations do not attempt to weld the sanitary connection to piping with the rupture disk installed. Welding must take place prior to installation of the rupture disk. Caution must be taken to eliminate warpage of the holder from the welding process.
  - 3) Clean all foreign material from the sealing area of both the inlet and outlet. If necessary, clean with a solvent that is compatible with your service. These surfaces must be clean and free from all corrosion and foreign material to insure proper sealing and burst accuracy. **DO NOT USE A SCRAPER OR ABRASIVES.**
- c) **Existing Installation**
  - 1) Remove the existing rupture disk from the system by loosening the clamp-nut/s and removing the clamp and outlet ferrule.
  - 2) If the Burst Indicator (BI) systems is being used, disconnect the alarm strip by unplugging the BI connector from the lead wire connector.
  - 3) Carefully remove the burst rupture disk without damaging it further and keep it if future evaluation is required.
  - 4) Remove any adhered gasket material from the previous installation.
  - 5) Clean all foreign material from the sealing area of both the inlet and outlet. If necessary, clean with a solvent that is compatible with your service. These surfaces must be clean and free from all corrosion and foreign material to insure proper sealing and burst accuracy. **DO NOT USE A SCRAPER OR ABRASIVES.**

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### INSTALLATION OF THE RUPTURE DISK INTO THE SYSTEM

- a) Carefully remove the new rupture disk from its packaging and inspect for damage. Look for nicks and cuts in the gasket and dents in the dome of the disk. **DO NOT REST THE DISK ON ITS DOME.**
  - 1) The ZANITARY Disk series has a controlled engineered deviation - approximately 3/4" arc shape closest to the tag.
- b) Always handle the rupture disk with extreme caution, installation of a damaged disk may result in leakage or affect the bursting accuracy.
- c) The Rupture disk has been factory cleaned with a water soluble detergent and is ready for installation. If your process requires additional cleaning, carefully clean the rupture disk without touching the dome of the disk with a solvent that is compatible with your service.
- d) **FOR SANITARY CLAMP STYLE INSTALLATION (Figure 1):**
  - 1) Place the new Rupture disk into the inlet with the flow arrow on the tag pointing in the vent direction of the relief system.
  - 2) Carefully install the outlet ferrule.
  - 3) Install the **sanitary** clamp around the ferrule so the the nut is on the same side as the Rupture disk tag.
  - 4) Hand tighten the nut so that the rupture disk is held in position.
  - 5) For RAUS, URAS and RLPS Series Rupture Disks: Torque the nut with a calibrated wrench to a recommended maximum **torque of 50 lbf-in (5.65 N-m)**. EXCESSIVE TORQUE MAY CAUSE THE DISK TO BURST LOWER THAN ITS MARKED BURSTING PRESSURE.
  - 6) The ZANITARY series rupture disks requires a specific torque for best performance:
    - 1) For all rubber gaskets, torque the nut with a calibrated wrench to a recommended maximum **torque of 50 lbf-in (5.65 N-m)**. EXCESSIVE TORQUE MAY CAUSE THE DISK TO BURST LOWER THAN ITS MARKED BURSTING PRESSURE.
    - 2) For teflon (PTFE) gaskets, the torque requirement is **70 lbf-in (7.91 N-m)**.

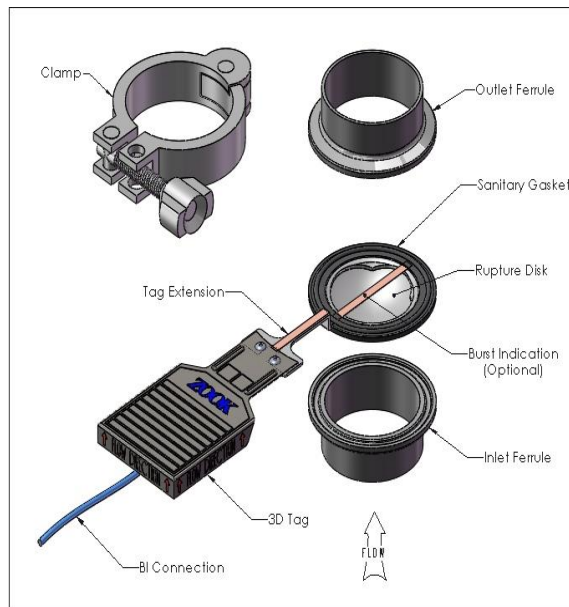


Figure 1: Sanitary Clamp Style Installation.

### e) **FOR NA CONNECT STYLE INSTALLATION (Figure 2):**

- 1) Place the new Rupture disk into the NA Connectors or equivalent connections inlet with the flow arrow on the tag pointing in the vent direction of the relief system.
- 2) Carefully install the outlet ferrule.
- 3) Install the locking ring on the Inlet by sliding the tabs over the threaded rods.
- 4) Hand tighten the nuts in a cross torquing pattern so that the rupture disk is held in position.
- 5) Torque each nut in a cross torquing pattern with a calibrated torque wrench to a recommended torque as shown in Figure 3. EXCESSIVE TORQUE MAY CAUSE THE DISK TO BURST LOWER THAN ITS MARKED BURSTING PRESSURE.

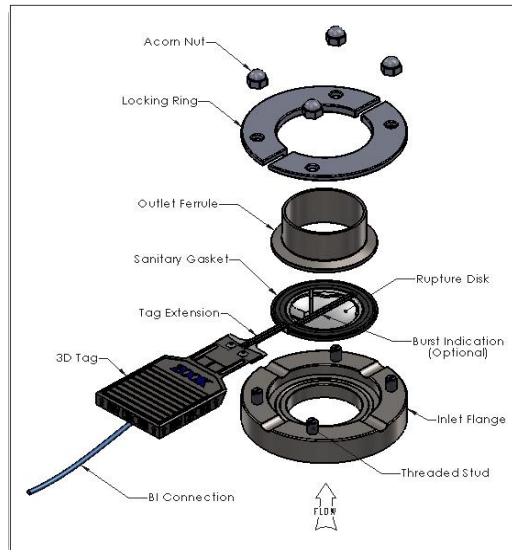


Figure 2: Sanitary NA Connect Style Installation.

Size	IN-LB	N-M
1"	30	3.4
1-1/2"	30	3.4
2"	30	3.4
2-1/2"	30	3.4
3"	25	2.8
4"	25	2.8

Figure 3: Recommended Torque for NA Connect Style Installation only.

- f) If the Burst Indicator (BI) systems is being used, connect the alarm strip by plugging the BI connector from the lead wire connector.
  - 1) Zook integral burst indicators are limited to 24 vdc maximum input voltage, 50 mA maximum input current and 400°F (204°C) maximum operating temperature. Consult the factory if additional information is required.
- g) Double check the orientation of the of the Rupture disk, verify that the flow arrow on the tag is pointing in the vent direction of the relief system.

### CIP (CLEAN-IN-PLACE) INSTRUCTIONS FOR 3A CERTIFIED RUTPURE DISKS

- 1) ZOOK sanitary series Rupture Disks are designed for clean in place (CIP) applications, however be sure that no brush, jet stream or any other cleaning mechanism makes contact with the disk.

### PREVENTIVE MAINTENANCE

- a) Store the Rupture disk in its original packaging until time of use. Early removal will increase the potential of damage.
- b) Under normal operating condition, annual replacement of the Rupture disk is considered good practice. A more frequent changeout may be required for more severe operating conditions. In this case the users operating history is the best indicator of changeout frequency.
- c) Premature failures of the Rupture disk may occur if periodic replacement is not performed.
- d) The Rupture disk is for a one time installation and hence is to be cleaned in place only. It is not recommended to uninstall the Rupture Disk until it has been Ruptured.

VISUAL INSPECTION WILL NOT REVEAL FATIGUE CAUSED BY PROCESS PRESSURE FLUXUATIONS OR EXPOSURE TO THE PROCESS MEDIUM. WHEN IN DOUBT, INSTALL A NEW DISK