



INSTALLATION INSTRUCTIONS

For Screw Type and Union Type Rupture Disk Holders
Rupture Disk Series: PB, FPB, D, FD, URA, SFAZ-UT

1) WARNING

- a) Read the complete instructions before attempting to install the rupture disk and holder assembly.
- b) It is the user's responsibility for the design of adequate venting and installation of appropriate vent piping or directional flow after rupture occurs with the rupture disk as intended. When size is specified, ZOOK assumes that adequate provisions have been made by the purchaser and/or user for proper venting of a system to relieve the specific pressure. Locate the rupture disk where people or property will not be exposed to the system discharge in the event of rupture. Vent toxic or flammable fumes to a safe location to prevent personnel injury or property damage.
- c) It is the user's responsibility 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 over pressurization of the system.
- d) Fragmentation may occur 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) Rupture disk service life is affected by corrosion, creep, fatigue, and physical damage. These conditions will de-rate the rupture disk to a lower pressure. The user should be prepared to handle a premature failure of the rupture disk. 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.
- f) 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 cannot guarantee the leakage rate of the disk seal without prior knowledge of the requirement and details of the piping layout. Consult ZOOK for guidance if leakage is critical to the installation.
- g) Leakage from a Union can result when joining pipe ends which are poorly aligned.
- h) Care should be taken to avoid placing Unions in lines subject to live loads and bending loads, which may cause failure or leakage.
- i) The customer and/or its installer shall be responsible for the proper installation of rupture disk device into a system. Recommended torque values do not consider piping stress or alignment.
- j) Customer and/or its installers shall be responsible for 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.
- k) ZOOK standard Terms and Conditions of Sale apply unless otherwise stated in writing by the manufacturer.

2) HOLDER PREPARATION

- a) Disassemble the holder by loosening and removing the union nut of a union type holder or outlet connection of a screw type holder.
- b) Remove the used rupture disk from holder inlet.
- c) Examine the sealing surfaces very carefully. Do NOT scrape or scratch any seating surface. If wiping these surfaces with a clean cloth and suitable solvent does not remove surface residue, fine emery cloth or steel wool may be utilized. Care should be exercised not to exert sufficient pressure on the emery cloth or steel wool to cut or groove these sealing surfaces.

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3) ASSEMBLY OF THE DISK AND HOLDER

- a) All ZOOK rupture disks are recommended for installation into holders manufactured by ZOOK ONLY.
- b) Rupture disks are precision instruments and must be handled with extreme care. Rupture disks should be installed only by qualified personnel familiar with rupture disks and proper piping practice.
- c) ZOOK does not recommend reinstalling a rupture disk that has been removed from its holder. Reinstallation may adversely affect the sealing capabilities and/or the performance of the rupture disk.
- d) Carefully remove the disk from its package.
- e) Examine the disk carefully before installation. **DO NOT USE IF THERE IS ANY INDICATION OF DAMAGE.** Handle with extreme care.
- f) Place the new unused rupture disk into the holder as per figure 1, 2, 3 or 4. with proper side of the disk facing the system pressure. **DO NOT USE A GASKET.**
- g) Carefully place the outlet in place as shown. If the holder is Screw Type, insert the Hold Down Ring on top of the rupture disk before placing the outlet in place.
- h) Lightly lubricate the internal assembly threads of the union nut or screw type outlet with oil or anti-seize prior to assembling rupture disk. Under some conditions, the threads can seize during extraction when no lubrication is used. Ensure that the oil or anti-seize is compatible with process media, application, and equipment, etc.
CAUTION: Do not seal internal ST threads with Teflon tape, sealant, or any other product that seals.
- i) For Union Type Holders, slip the union nut over the outlet as shown.
- j) Install the assembly **WITH ALL FLOW ARROWS POINTING IN THE PROPER DIRECTION** into the piping system.
- k) Follow the appropriate torquing procedure in Sections 4 and 5 of this document.

4) TORQUING PROCEDURE FOR UNION TYPE HOLDERS

- a) Tighten the union nut to the torque shown in Table #1. If the angle seated rupture disk does not seal, loosen off the assembly about ¼ turn and re-tighten it, increase torque in 5 Ft.Lbs (7 N-m) increments each time this step is taken until the disk no longer leaks. **DO NOT** exceed 150% of the minimum torque value.
- b) Attach the disk tag to the union or to the pipe as close to the union as possible so the rupture pressure and other disk data can be seen easily.
- c) Care should be taken to ensure that the outlet does not rotate when tightening the union nut, which may damage the disk and cause leakage.
- d) Hammer nut union assembly has a MAWP up to 2,000 psi(g). For torque application, it is commonly recommended that no more than a 3-to-5-pound sledgehammer be used. Burst pressures up to 1,000 psi(g) can be sealed by approx. three intentional hits. Burst pressures above 1,000 psi(g) will require three intentional hits or more. Torque values shown in Table #1 do not apply to hammer nut union assemblies.

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Table #1 – Union Type Recommended Torque Ft.Lbs (N-m)						
Disk Size	Union Rating	Stamped Burst Pressure psig (barg)				
		0-500 (0-34)	501-1000 (35-68.9)	1001-2000 (69-137.9)	2001-3000 (138-206.8)	3001-6000 (206.9-414)
½" (12 mm)	3000#	100 (136)	110 (149)	120 (163)	140 (190)	-
	6000#	120 (163)	130 (176)	140 (190)	160 (217)	240 (325)
¾" (19 mm)	3000#	120 (163)	150 (203)	170 (230)	225 (305)	-
	6000#	170 (230)	170 (230)	200 (271)	260 (353)	350 (475)
1" (25 mm)	3000#	150 (203)	150 (203)	175 (237)	250 (339)	-
	6000#	225 (305)	225 (305)	300 (407)	350 (475)	500 (678)
1-1/2" (40 mm)	3000#	225 (305)	275 (373)	375 (508)	500 (678)	-
	6000#	240 (325)	240 (325)	370 (502)	425 (576)	600 (813)
2" (50 mm)	3000#	200 (271)	600 (813)	600 (813)	-	-

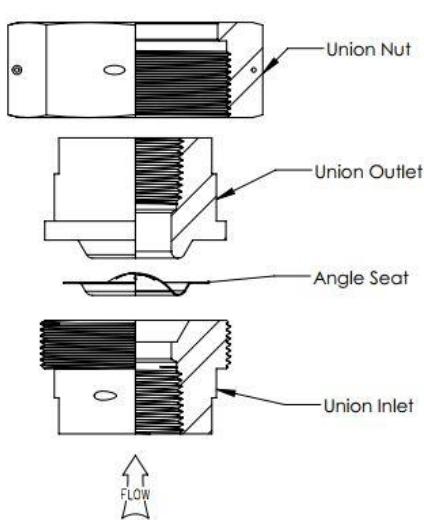


Figure 1 – Angle Seated Disk Union Type Holder

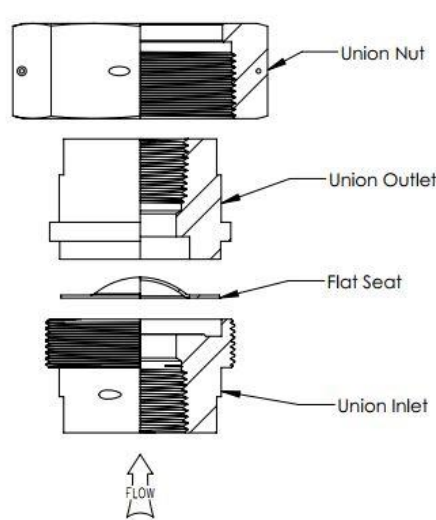


Figure 2 – Flat Seated Disk Union Type Holder

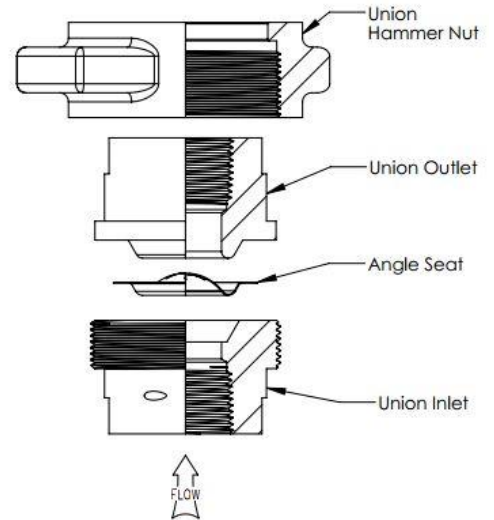


Figure 3 – Angle Seated Disk w/ Hammer Nut Union Type Holder

5) TORQUING PROCEDURE FOR SCREW TYPE HOLDERS

- Tighten the screw type holder to the torque shown in Table #2, loosen off the assembly about ¼ turn and re-tighten with the same torque.
- Attach the disk tag to the screw type or to the pipe as close to the screw type as possible so the rupture pressure and other disk data can be seen easily.

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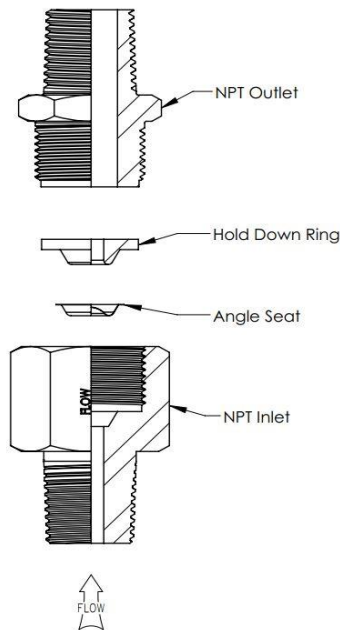
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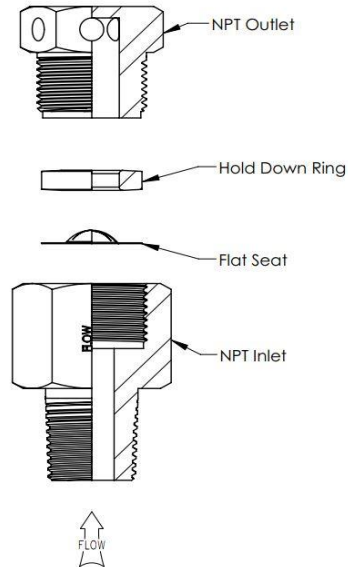
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Table #2 – Screw Type					
Stamped Burst Pressure psig	Stamped Burst Pressure barg	Minimum Torque Ft.Lbs (N-m)			
		¼" (6 mm) Angle	½" (12 mm) Angle	½" (12 mm) Flat	11/16" (17 mm) Flat
0-500	0-34	27 (37)	60 (81)	67 (91)	20 (27)
501-1000	35-68.9	27 (37)	67 (91)	67 (91)	67 (91)
1001-2000	69-137.9	29 (39)	73 (99)	106 (144)	-
2001-3000	138-206.8	33 (45)	106 (144)	106 (144)	-
3001-4000	206.9-275.8	40 (54)	173(235)	200 (271)	-
4001-5000	275.9-344.7	47 (64)	186 (252)	200 (271)	-
5001-6000	344.8-413.7	53 (72)	200 (271)	200 (271)	-
6001-10,000	413.8-689.5	60 (81)	-	200 (271)	-
10,001-15,000	689.5-1,034.2	64 (87)	-	-	-
15,001-20,000	1,034.3-1,379	67 (91)	-	-	-
20,001-30,000	1,379.1-2,068.4	73 (99)	-	-	-
30,001-40,000	2,068.5-2,757.9	106 (144)	-	-	-
40,001-50,000	2,758-3,447.4	133 (180)	-	-	-
50,001-60,000	3,447.5-4136.9	180 (244)	-	-	-

Angle Seated Rupture Disk (PB & D Series)
Flat Seated Rupture Disk (FPB, FD & URA Series)



**Figure 3 – Angle Seated Disk
Screw Type Holder**



**Figure 4 – Flat Seated Disk
Screw Type Holder**

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