



# INSTALLATION INSTRUCTIONS

## Burst Alert Rupture Disk Sensor Flat Seated Disks, Angled Seated Disks and Holders

### 1) WARNING

- a) Read the complete instructions before attempting to install Burst Alert Assembly.
- b) Customer and/or the installer 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.
- c) ZOOK standard Terms and Conditions of Sale apply unless otherwise stated in writing by the manufacturer.
- d) Consideration must be given to protecting the attached cable from sharp edges whenever possible.
- e) If equipment is used in applications where it may be subjected to an efficient charging mechanism, such as equipment which may convey fast moving dust laden air, then appropriate consideration shall be given to the capacitance of the unearthed metal body in the particular mounting arrangement and risk of charge retention under these conditions.
- f) The equipment shall be regularly cleaned to prevent the build-up of dust deposits.
- g) Service life is affected by corrosion, physical damage and incorrect installation.
- h) Warning: Field modification and material substitution will void the warranty of this product.
- i) Location of Venting
  - 1) **ALWAYS VENT THE OUTLET TO A SAFE AREA**, away from personnel. If the process fluid is toxic or hazardous connect the outlet side of the rupture disk assembly to a containment tank.
  - 2) Consideration should be given to prevent build-up of rain water, snow, animal nesting or other debris that may build up in the discharge piping and disturb the normal operation of the BA sensor.
- j) Get the latest ZOOK installation guides, and product literature at [www.zookdisk.com](http://www.zookdisk.com) or follow this QR code on your smartphone to be connected directly to our website.



### 2) OPERATING PRINCIPALS AND SERVICE LIMITS

- a) The BA sensor can be used on liquid, gas or two phase flow.
- b) Minimum system operating pressure is 5 psi.
- c) Minimum operating temperature range is  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ) to maximum  $500^{\circ}\text{F}$  ( $260^{\circ}\text{C}$ ). Consult ZOOK for higher temperatures.
- d) Suitable for intrinsically safe power levels. Maximum current 500mA, maximum voltage 24 VDC.

### 3) INSTALLATION INSTRUCTIONS

- a) The BA sensor is typically installed on the vent side of the rupture disk assembly between the disk holder outlet and the companion flanges (Figure 1 Below). The BA sensor can also be mounted directly between companion flanges (Figure 2 below). Sizes 1" – 30" are designed to fit within the bolts of standard ANSI, DIN and JIS flanges.
- b) Ensure the metal conductor is inserted in the slot  $180^{\circ}$  across from its hinge (See Figure 1 below).
- c) Clean the clamping surfaces of the companion flanges and if required the disk holder thoroughly.
- d) For proper orientation, the flow arrow on the tag must point in the venting direction. Place the BA sensor between the disk holder outlet and companion flange, centering it within the bolts.
- e) Use electrically insulated gaskets on both sides of the BA sensor if not supplied already attached.
- f) Mark the installation date on the back of the BA sensor tag.
- g) Follow the torquing procedure per Section 5 of this document.
- h) The conductor may be reinserted in the slot  $180^{\circ}$  across from its hinge after each detection.

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Figure 1- BA with Holder Between Flanges

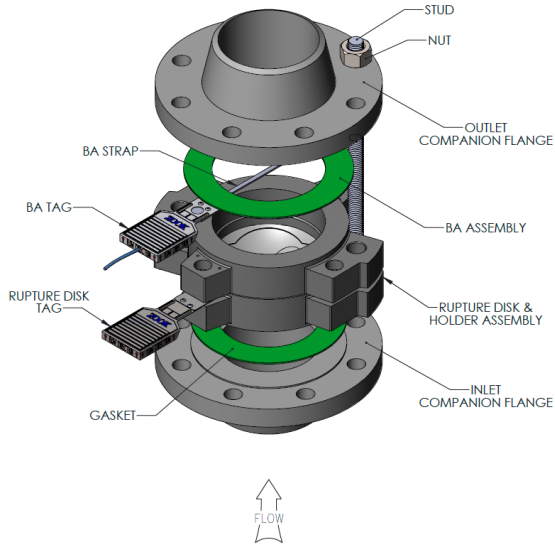
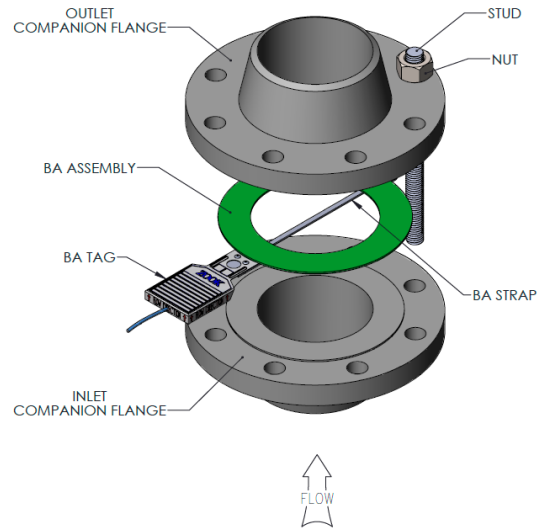


Figure 2- BA Between Flanges



#### 4) LEAK DETECTION (LD) OPTION INSTALLATION

- The LD is installed on the process side of BA sensor.
- Align outside diameter of LD with outside diameter of the BA sensor.
- The LD may be held in place by using small piece of Scotch® tape over the outside diameter on both sides of the BA sensor.
- Locate tape 90° from both sides of identification tag.
- Tape must not extend more than half way across gasket surface.
- After each leak detection a replacement LD must be installed. Contact ZOOK for replacement LD kits.

#### 5) TORQUEING PROCEDURE

**NOTE: When installing the BA Sensor in conjunction with a rupture disk assembly, follow the torqueing specifications indicated in the rupture disk installation instructions.**

- Finger tighten all of the nuts.
- Using a torque wrench, cross-tighten each bolt to  $\frac{1}{4}$  of the desired final torque (see table 1 or 2 below) until every bolt has been tightened.
- Repeat step 2 to  $\frac{1}{2}$  and  $\frac{3}{4}$  of desired torque and then to the full desired final torque.

**Note: OVER TORQUING CAN DAMAGE THE BA SENSOR.**

**Note: For Applications requiring torques above values presented on these tables, please consult ZOOK.**



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## Burst Alert Rupture Disk Sensor Flat Seated Disks, Angled Seated Disks and Holders

**TABLE 1: Flat Seated Disks or Installed Directly Between Flanges**

TABLE 1 - RECOMMENDED FLANGE BOLT TORQUE VALUES							
IMPERIAL A193 Grade B7 Studs and A194 Grade 2H Nuts				METRIC ISO 898-1 Class 8.8			
Nominal Diameter of Bolt (inches)	Number of Threads (per Inch)	Recommended Torque Ft-Lbs		Thread Designation	Thread Pitch (mm)	Recommended Torque Nm	
		Recommended 30,000 Psi Bolt Stress	Maximum 45,000 Psi Bolt Stress			Recommended 205 N / mm <sup>2</sup> Bolt Stress	Maximum 310 N / mm <sup>2</sup> Bolt Stress
1/2	13	30	51	M10	1.5	20	30
5/8	11	59	88	M12	1.75	34	52
3/4	10	105	158	M14	2	55	83
7/8	9	170	255	M16	2	86	130
1	8	255	383	M18	2.5	118	178
1 1/8	8	378	566	M20	2.5	167	254
1 1/4	8	533	798	M22	2.5	228	346
1 3/8	8	725	1,087	M24	3	286	434
1 1/2	8	961	1,440	M27	3	423	641
1 5/8	8	1,244	1,865	M30	3.5	577	875
1 3/4	8	1,571	2,355	M33	3.5	788	1,190
1 7/8	8	1,968	2,893	M36	4	1,010	1,530
2	8	2,401	3,599	M39	4	1,305	1,977
2 1/4	8	3,471	5,203	M42	4.5	1,622	2,458
2 1/2	8	4,819	7,223	M45	4.5	2,013	3,051

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# INSTALLATION INSTRUCTIONS

## Burst Alert Rupture Disk Sensor

### Flat Seated Disks, Angled Seated Disks and Holders

**TABLE 2: ANGLE SEATED DISKS**

Table #2 – Recommended Torque Table							
Size		Flange Series		Companion Flange Bolting Torque			
IN	MM	ANSI	DIN	FT-LB		N-M	
				Teflon Seal	All Metal (Plastic Liner)	Teflon Seal	All Metal (Plastic Liner)
1/2"	13	150	10/16	5	9	8	12
		300	25/40	5	9	8	12
		600	64/100	5	9	8	12
		900		30	34		
		1500	160	30	34	24	29
			250			36	39
3/4"	20	150	10/16	16	14	20	18
		300	25/40	20	17	20	17
		600	64/100	20	17		
		900		86	85		
		1500	160	86	85		
			250				
1"	25	150	10/16	15	28	19	36
		300	25/40	20	36	20	37
		600	64/100	20	36	27	49
		900		60	100		
		1500	160/250	60	100	59	98
			250				
1-1/2"	38	150	10/16	18	30	31	51
		300	25/40	32	40	36	46
		600	64/100	32	40	36	46
		900		140	160		
		1500	160	140	160	120	137
			250			149	171
2"	50	150	10/16	72	96	98	131
		300	25/40/64	40	48	109	131
		600	100	40	48	137	164
		900		110	152		
		1500	160	110	152	268	371
			250			134	185
3"	80	150	10/16	96	110	66	75
		300	25/40/64	72	80	82	91
		600	100	72	80	102	114
4"	100	150	10/16	60	100	82	137
		300	25/40	60	100	68	114
		600	64	110	152	134	185
			100			161	223

- Note 1** - Torque values assume the threads are lightly oiled and free running.
- Note 2** - For some installation increased torque may be required for sealing. Consult ZOOK for increased torque values.
- Note 3** - Companion flange torque values should be verified periodically at the system temperature.

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**TABLE 2: ANGLE SEATED DISKS**

Table #2B – Recommended Torque Table							
Size		Flange Series		Companion Flange Bolting Torque			
IN	MM	ANSI	DIN	FT-LB		N-M	
				Plastic Component	All Metal	Plastic Component	All Metal
6"	150	150	10/16	75	160	107	229
		300	25/40	56	100	150	268
		600	64	60	108	160	289
			100			107	192
8"	200	150	10/16	140	260	133	248
		300	25	120	200	185	308
			40			222	370
		600	64/100	116	208	200	358
10"	250	150	10/16	140	260	216	401
		300	25	124	212	262	448
			40			295	204
		600	64/100				
12"	300	150	10/16	160	280	246	431
		300	25	150	260	207	358
			40			232	403
		600	64/100				
14"	350	150	10/16	200	360	264	475
		300	25	140	240	271	465
			40			301	516
		600	64/100				
16"	400	150	10/16	180	276	285	437
		300	25	172	264	334	512
			40			367	563
		600	64/100				
18"	450	150	10/16	200	380	285	
		300	25	190	360	334	
			40			367	737
		600	64/100				
20"	500	150	10/16	180	350	203	542
		300	25				
			40			389	
		600	64/100				
24"	600	150	10/16	240	480	279	745
		300	25/40				
		600	64/100				

- Note 1** - Torque values assume the threads are lightly oiled and free running.
- Note 2** - For some installation increased torque may be required for sealing. Consult ZOOK for increased torque values.
- Note 3** - Companion flange torque values should be verified periodically at the system temperature

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