



BS&B SAFETY SYSTEMS, INC.
BS&B SAFETY SYSTEMS LTD.

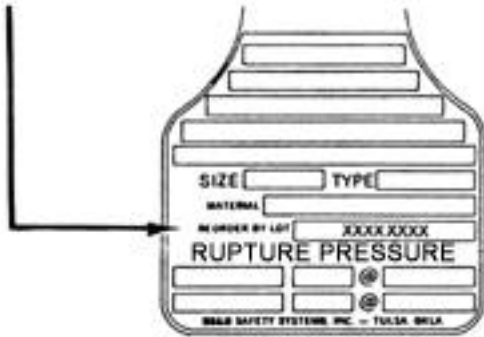
D-D TYPE DISKS AND FDD-7R SAFETY HEADS INSTALLATION INSTRUCTIONS

**BULLETIN
77-3005I**

◆ NEW INSTALLATIONS

◆ REPLACEMENT OF DISKS IN EXISTING INSTALLATIONS

◆ ORDER REPLACEMENT DISKS BY LOT NUMBER.



Select Proper Location for the Assembly

1. CAUTION -- Vent to safe area

Check the location. Do not locate where personnel could be exposed to product being discharged through the safety head. Plant equipment in the vicinity of discharge could also be damaged.

2. Consider recoil or "kick-back". Recoil is the force the system will experience upon rupture. Recoil is approximately twice the disk rating (psig) times the relief area (in²). Provide adequate support for piping and connections. If the discharge is free vented, a baffle plate mounted on the safety head outlet with extra length studs will minimize recoil.

3. Provide adequate support for the downstream vent piping. The safety head should be subjected to excessive structural bending stresses.

Before You Install the Rupture Disk

1. Inspect Flange

Clean seating surfaces of both Safety Head Flanges before installing rupture disk. Pits, dirt, or grit can damage rupture disk or cause leakage. If surfaces are rough, polish with a fine emery cloth. **DO NOT MACHINE!** Dimensions of the Safety Head are critical. **DO NOT ALTER THEM.**

2. Inspect Rupture Disk

Handle rupture disk carefully -- it is a precision instrument. Examine seating and prebulged surfaces before installing.

DO NOT INSTALL THE DISK IF THERE IS ANY DAMAGE IN THE DOME. A damaged disk is any disk with visible nicks, dents, or scratches that show through. It must not be installed. Installation of a damaged disk may result in premature rupture of the disk.

3. Check disk rating and companion flange rating.

a. Do not install a rupture disk having a rupture pressure rating above the companion flange rating.

b. The safety head nominal size and ANSI bolting must match the companion flange nominal size and ANSI rating.

Bolting and rating must match with ANSI standard B16.5.

c. Safety head and disk materials should be compatible with your process.

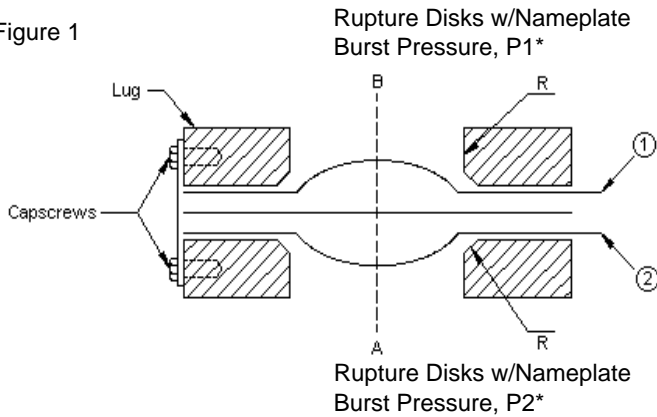
CAUTION

Do not reinstall a disk that has been removed from a safety head fitting, even though it has not been ruptured. When stresses are relieved by unbolting, the "set" taken by the disk during its original installation may prevent a tight seal causing leakage at seating area and may affect performance if reinstalled.

Assemble Rupture Disk and Safety Head

1. CAUTION! Safety head flanges are identical. Special attention during assembly and installation is required for safe installation.
2. Place new, undamaged rupture disk between safety head flanges (See Figure 1.) Place safety head flanges with the radius, R toward the disk assembly. Tighten capscrews sufficiently to hold disk in place between the two flanges.

Figure 1



Install Safety Head

1. Insert the FDD-7R Safety Head and rupture disk assembly between the companion flanges in the pressure system. After carefully reading paragraph 2, install Safety Head assembly. Make sure Safety Head assembly is installed in the proper direction. Center the Safety Head assembly in the companion flanges (tolerance = 1/16 inch). Select gasket material suitable for service conditions.
 2. An understanding of how the D-D disk functions will avoid confusion during installation. (See Figure 1).
 - a. Disk (1) will burst when the pressure on side A exceeds the pressure on side B by the burst pressure, P1. Disk (1) will burst when $P_A - P_B > P_1$ (i.e. Disk (1) controls overpressure on side A). Flow will be from side A to side B.
 - b. Disk (2) will burst when the pressure on side B exceeds the pressure on side A by the burst pressure, P2. Disk (2) will burst when $P_B - P_A > P_2$ (i.e. Disk (2) controls overpressure on side B). Flow will be from side B to side A.
 - c. When either disk bursts the other disk will immediately reverse and burst.
- *P1 and P2 are the stamped burst pressures. Disks may actually burst anywhere within the burst tolerance.
3. Install companion flange studs with nuts. Tighten all nuts finger tight before torquing. Evenly torque the studs to the values given in Table I. Even torque may be achieved by applying 1/4 of desired final torque to each stud. Repeat pattern by torquing to 3/4 of desired final torque. Then, using same pattern, torque to specified torque.
 4. The user is cautioned to select gasket materials adequate for the service condition and ability of the gasket to resist "cold flows". Gaskets that "cold flow" will allow torque relaxation which will cause low bursts. Check periodically to assure proper torque.

TORQUE TABLE I

Torque values for Flat Seat Type D-D Disks in Flat Seat FDD-7R Safety Head Assemblies in Foot Pounds

SIZE	SAFETY HEAD RATING	TYPE D-D DISKS W/PLASTIC SEALS
	ANSI	FT-LBS
1	150	20
	300	40
	600	40
1.5	150	30
	300	60
	600	60
2	150	40
	300	40
	600	40
3	150	40
	300	67
	600	67
4	150	60
	300	100
	600	110
6	150	100
	300	110
	600	165
8	150	130
	300	235
	600	265
10	150	160
	300	245
	600	330
12	150	225
	300	305
	600	330
14	150	350
	300	290
16	150	345
	300	360
18	150	468
	300	345
20	150	405
	300	375
24	150	540
	300	540

LIMITATIONS OF WARRANTIES

BS&B Safety Systems, Inc. warrants its products against defective workmanship and material under normal and proper use in service for a period of twelve (12) months from the date of shipment, when owned by the original buyer and only when subject to normal operating conditions outlined by Buyer when the order is placed; except that, rupture disks are not guaranteed except to burst within specified pressure ranges at temperatures specified at the time of sale.

Where the products involved include a rupture disk inside a rupture disk holder, each must be of the proper type to be utilized with its mating part as otherwise recommended by and manufactured by BS&B. BS&B specifically disclaims any warranty and any and all liability for damages, either direct or indirect, incidental or consequential, arising from the use of rupture disk assemblies not wholly comprised of BS&B manufactured products.

Any article not manufactured by BS&B and which is sold hereunder is sold only under such warranties as the manufacturer thereof extends to BS&B and which BS&B can pass through to the Buyer and enforce with reasonable effort.

Because of the effects of corrosion or erosion caused by acids, chemicals, fumes, rust, dirt, debris and other factors of storage, use, and installation, over which BS&B has no control, BS&B makes no other warranties beyond those expressly stated in this limited warranty.

THE EXPRESSED WARRANTIES HEREINBEFORE GIVEN BY BS&B SAFETY SYSTEMS, INC. ARE EXCLUSIVE AND IN LIEU OF ALL WARRANTIES EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.



BS&B SAFETY SYSTEMS, INC.
BS&B SAFETY SYSTEMS LTD.

BS&B Safety Systems, Inc. and BS&B Safety Systems Ltd. are here to assist you in providing a safe and efficient work place. For assistance on installation, audits, training or technical advice, please contact our Customer Service Department.

BS&B Safety Systems, Inc.
7455 East 46th Street
Tulsa, OK 74145
Telephone: 918-622-5950
Facsimile: 918-665-3904
www.bsbsystems.com

or

BS&B Safety Systems Ltd.
Raheen Business Park
Raheen, Limerick, Ireland
Telephone: +353 61 227022
Facsimile: +353 61 227987
www.bsb.ie