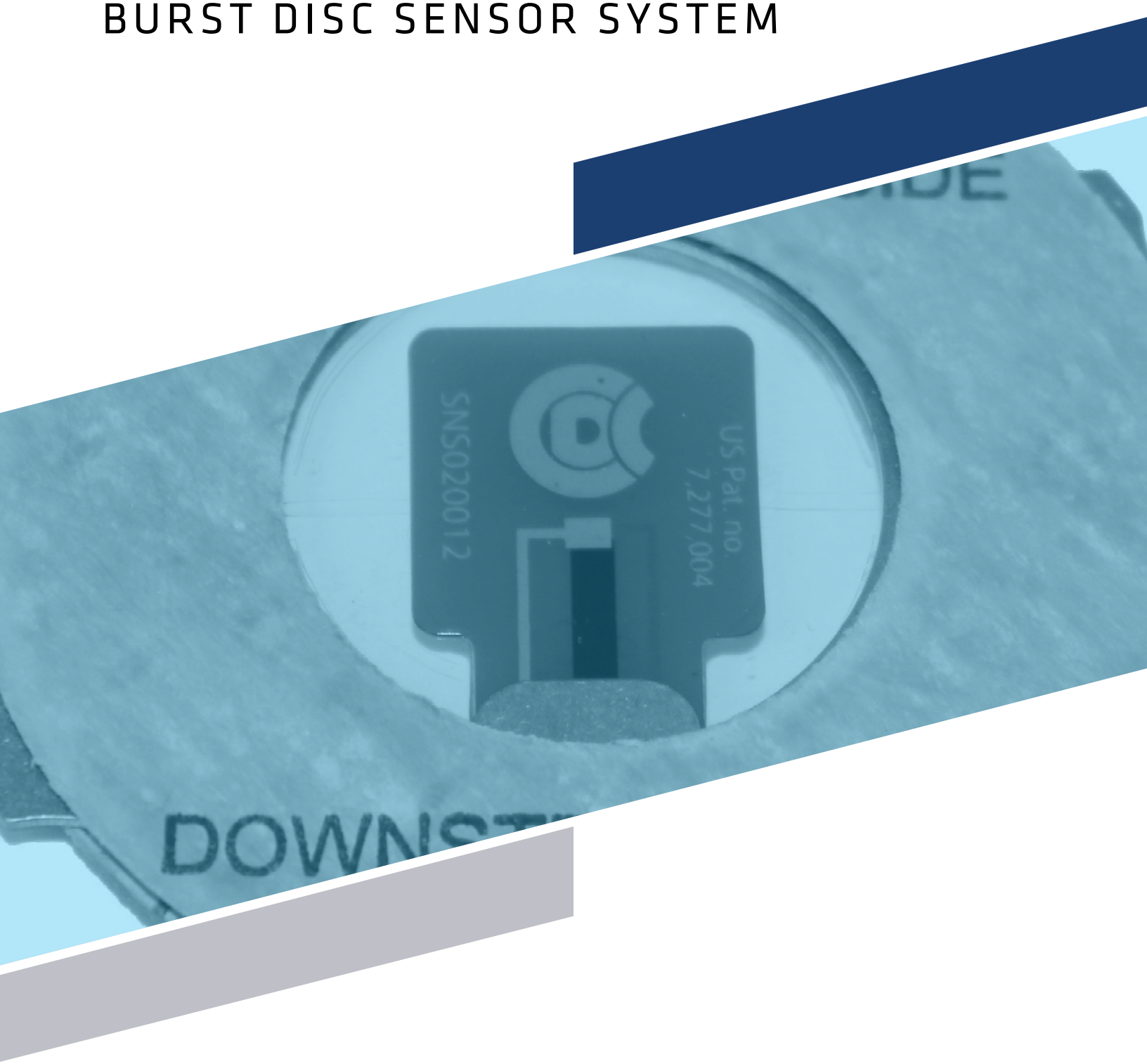
Continental Disc® Corporation

BDI-FLX™

BURST DISC SENSOR SYSTEM



BDI-FLX™

The BDI-FLX Burst Disc Sensor System provides instantaneous notification of a burst rupture disc. When combined with an alarm monitor, This system protects lives, equipment, the environment and process media. It can be used with customers monitoring systems or with an alarm monitor provided by Continental Disc Corporation.

Designed for use with ASME and DIN flanges or sanitary applications, the BDI-FLX employs a sensor strip with a flexible potentiometer (an electrical component that varies resistance in response to deflection) to signal a burst disc.

The BDI-FLX Burst Disc Sensor System maintains a continuous signal with an alarm monitor. If the disc bursts, the BDI-FLX Sensor System notifies the alarm monitor by opening the electrical circuit.

Technical Details

- Nominal Size Range: 1" – 12" (25 mm – 300 mm)
- Disc Compatibility: HPX®, HPX-Ta®, LOTRX®, MICRO X®, Composite, Standard, SANITRX HPX®, SANITRX HPX® II, SANITRX LPX™ (2"-3" only)
- Seating Configuration: Sanitary FS, Sanitary IS or between Industrial Flanges (ASME or DIN)
- Service: Liquid or gas

Features

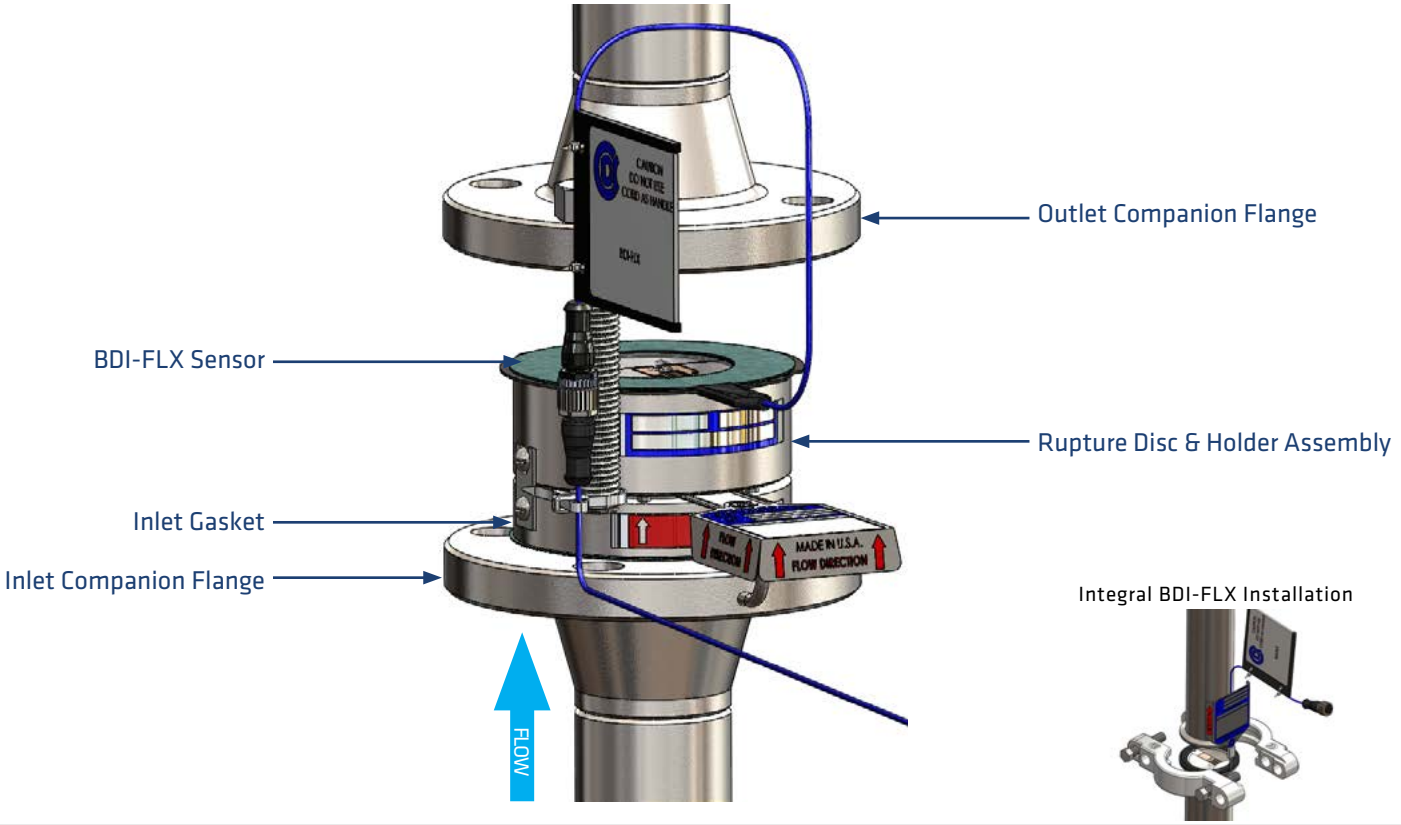
- The BDI-FLX Sensor System can adapt to a variety of warning devices. Control panels, annunciators, light panels or other signaling devices can be used to warn of a ruptured disc
- The BDI-FLX Sensor System can also notify of overpressure situations when paired with pumps, valves and other systems
- If the BDI-FLX Sensor System loses power or is damaged, it defaults to an open circuit

Options

- Available with non-asbestos or fiber reinforced fluoropolymer gaskets

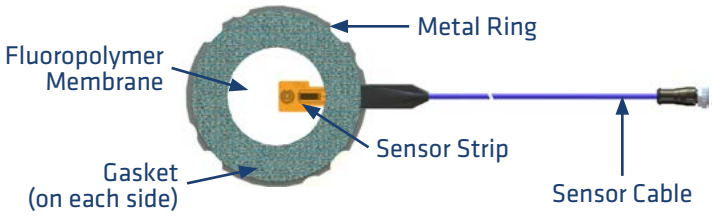
BDI-FLX™ COMPONENTS

Installation of the BDI-FLX Burst Disc Sensor System

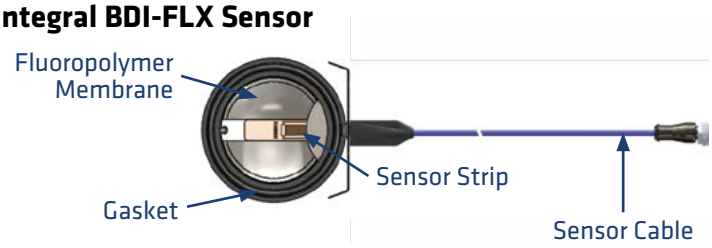


Integral BDI-FLX Installation

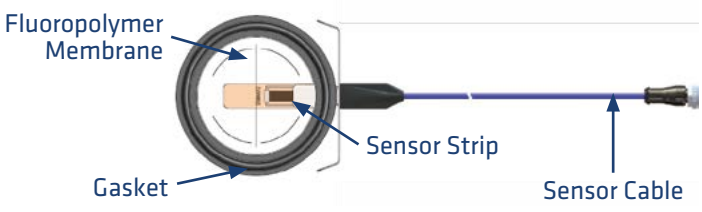
BDI-FLX Sensor



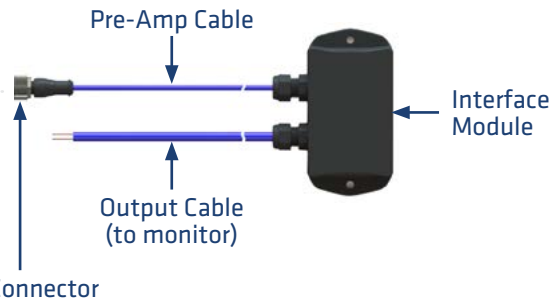
Integral BDI-FLX Sensor



Sanitary BDI-FLX Sensor



Interface Cable



BDI-FLX™ SENSOR

Technical Details

- One-time use Sensor Assembly
- Configurable for all BDI-FLX Model Interface Cable Assemblies
- Temperature: -40°F to +400°F (-40°C to +204°C)
- Available for Industrial and Sanitary applications
- Integral for SANITRX HPX, SANITRX HPX II (1" - 4") & SANITRX LPX (2"-3" only) Rupture Discs
- Standard 1.5 ft (0.45 m) long, shielded blue cable with M12 connector. The M12 connector ensures a secure connection to the interface cable. The connector can be easily disconnected and reconnected by the user for replacement of the disposable sensor. The M12 meets an IP67 rating.

Sensor Nominal Sizes & Activation Pressures

BDI-FLX Nominal Size Inch (mm)	Minimum Pressure psig (barg)
1 (25)	5 (0,35)
1 ½ (40)	4 (0,28)
2 (50)	3 (0,21)
3 (80)	2 (0,14)
4 (100)	2 (0,14)
6 (150)	2 (0,14)
8 (200)	2 (0,14)
10 (250)	2 (0,14)
12 (300)	2 (0,14)

Sanitary/Integral Nominal Size Inch (mm)	Minimum Pressure psig (barg)
1 (25)	25 (1,72)
1 ½ (40)	10 (0,69)
2 (50)	5 (0,34)
3 (80)	2 (0,14)
4 (100)	1 (0,07)

BDI-FLX

Sanitary BDI-FLX

Integral BDI-FLX

BOLTING CLASSES & GASKETS

Industrial Application Bolting Classes

Size Inches (mm)	ASME	DIN
1 (25)	150#, 300#/600#	PN 10/40
1 ½ (40)	150#, 300#/600#	PN 10/40
2 (50)	150#, 300#/600#	PN 10/40
3 (80)	150#, 300#/600#	PN 10/40
4 (100)	150#, 300#	PN 10/16
6 (150)	150#, 300#	PN 10/16
8 (200)	150#, 300#	PN 16
10 (250)	150#, 300#	PN 16
12 (300)	150#, 300#	ON 16

Sanitary Gasket Materials

FDA & USP Class VI Compliant Gasket Materials	Minimum Service Temperatures °F (°C)	Maximum Service Temperatures °F (°C)
Peroxide Cured Silicone	-80 (-62)	450 (232)
Platinum Cured Silicone	-80 (-62)	350 (177)
White VITON®	-20 (-29)	400 (204)
Black VITON®	-20 (-29)	400 (204)
White EPDM	-55 (-48)	275 (135)
Black EPDM	-55 (-48)	275 (135)
PTFE Fluoropolymer	-40 (-40)	450 (232)

Gaskets designed for use in ferrule connections having ASME-BPE dimensions or equivalent.

INTERFACE CABLE

Technical Details

- Reusable assembly
- Routes electric power to the sensor
- Monitors sensor strip resistance for rupture disc status
- Transmits output signal to user's system
- Temperature limits: -40°F to +158°F (-40°C to +70°C)
- 6 ft long (1.8 m) shielded pre-amp cable with M12 connector and 6 ft long (1.8 m) shielded output cable with bare lead ends (12 ft or 3.6 m total length)

Model Options

Model 2W-IS

- Two-wire intrinsically safe design for use with a customer's safety barrier or the CDC MTB-700B Monitor
- Certified for IECEx (International) for Zone 0 Group IIC and Zone 20, Group IIIC
- Certified for UL and cUL for Class I, Div 1 Group A, B, C, D; Class II, Div 1 Group F, G and Class III, Div 1

Model 2W-NIS

- Two-wire non-intrinsically safe design for use with PLC and DCS discrete input switching
- Powered from PLC or DCS or other suitable load that is in-series connected to DC power, no separate power input wiring is required
- Listed by UL and cUL under Process Control Equipment Category

Model 4W-NIS

- Four-wire non-intrinsically safe design with dry contact switching for non-classified (non-hazardous) locations
- Provides a "single-pole single-throw" (SPST) normally closed relay output signal
- Power-isolated switch output and switching capacity for DC and AC voltage
- Output available for PLC, DCS, interposing relays, alarm systems and actuator elements
- Listed by UL and cUL under Process Control Equipment Category
- Best suited for non-hazardous applications that require full isolation for additional safety and where users are not limited to using two-wire connection

INTERFACE CABLE

Interface Cable Specifications & Certifications

	Model 2W-IS	Model 2W-NIS	Model 4W-NIS
Operation	Normally Closed	Normally Closed	Normally Closed
Intrinsically Safe	Ex ia IIC T4 Ga Ex ia IIIC T135°C Da	No	No
Load Type	Safety Barrier Switching Amplifier	PLC/DCS discrete input	Resistive or Inductive load, e.g., PLC/DCS, relay, etc
Operating Voltage	6 ~ 12 VDC	7 ~ 30 VDC	6 ~ 28 VDC
Output Signal Type	2-Wire electronic switch (power input and signal output share the same 2-wire cable)	2-Wire electronic switch (power input and signal output share the same 2-wire cable)	Reed relay (switching dry contact)
Output Level Switching ON	4.5 mA typical 2.5 mA MIN 4.85 mA MAX	12 mA typical 10.5 mA MIN 12.5 mA MAX	Max switching power: 3VA Max carry current: 250 mA Max switching voltage: 60 VDC or 30 VAC
Output Level Switching OFF	0.85 mA MAX	0.85 mA MAX	Open Contact
CE Mark	Yes (under the ATEX Directive)	Not Required	Not Required
UL / cUL Mark	Yes Class I Div 1 A,B,C,D Groups Class II Div 1 F,G Groups Class III Div 1	Yes UL File# E350819	Yes UL File # E350819
IECEx	Ex ia IIC T4 Ga Ex ia IIIC T135°C Da	No	No

Interface Cable Model Options

Monitor Model	Model 2W-IS	Model 2W-NIS	Model 4W-IS
MTB-700B	Yes	No	Yes*
BB-100A	No	No	Yes*
BB-400A	No	No	Yes*

* The BDI-FLX 4W-NIS model can work with any of our monitor models if separate input power is provided. However, the 4W-NIS is NOT for intrinsically safe applications and is not recommended for use in hazardous locations.

ALARM MONITORS

The CDC Alarm Monitors have been developed as an optional alarm monitor system to notify operators or activate appropriate equipment of an overpressure or vacuum event. Control panels, annunciators, light panels or other signaling devices can be used to warn of a ruptured disc. The CDC Alarm Monitor is versatile to adapt to a variety of warning devices. Pumps, valves and other systems may also be activated to respond to an overpressure or vacuum situation by the indication of the BDI-FLX Burst Disc Sensor System.

Together, the BDI-FLX Burst Disc Sensor System with a CDC Alarm Monitor will provide immediate notification of a burst disc to reduce downtime, increase efficiency and ensure the safety of your facility.

ALARM MONITORS

Alarm Monitor Options

Alarm Models	MTB-700B	BB-100A	BB-400A
Discreet Channels Available	2 or 4	2	8
Audio / Visual Alarms Provided	Optional	NO	NO
Dry Contacts for Remote Alarms	YES	YES	YES
Output Relay Type	DPDT Form C	SPDT Form C	SPDT Form C
Relay Max Current	5 A @ 240 VAC Resistive 5 A @ 24 VDC Resistive 1/8 HP @ 120/240 VAC, 7 A maximum carry current	2 A @ 120 VAC Resistive 1 A @ 120 VAC Inductive 2 A @ 24 VDC Inductive	2 A @ 120 VAC Resistive 1 A @ 120 VAC Inductive 2 A @ 24 VDC Inductive
Intrinsically Safe* Field Circuit	Yes	No*	No*
Barrier Type	Galvanically Isolated	Zener Diode	Zener Diode
Enclosure Rating	NEMA 4, 4X, 12, 13	None	None
Operating Temperature Range	-4°F to +113°F (-20°C to +45°C)	-40°F to +104°F (-40°C to +40°C)	-40°F to +104°F (-40°C to +40°C)
Reset Mode (Latching, Non-Latching)	Latching only	Either Available	Either Available
Output Current	7 VDC @ 22 MA	6 VDC @ 0.1 MA	6 VDC @ 0.1 MA
Input Power Options	120/240 VAC, 50/60 Hz 24 VDC +/- 2 V	115/230 VAC 50/60 Hz 12 VDC +/- 1 V	115/230 VAC 50/60 Hz 12 VDC +/- 1 V
Remote Master Test Contacts	Yes	No	No
Remote Master Reset Contacts	Yes	Yes	Yes
Barrier Certifications	FM, ATEX***, IECEx	None	None
BDI-FLX Alarm Monitor Options	2W-IS	4W NIS**	4W NIS**

* Intrinsically Safe is defined as: “Apparatus, including wiring, in which any spark or thermal effect produced either normally or in specified fault conditions is incapable under test conditions of causing ignition of a specified mixture of flammable or combustible material in air.”

** The BDI-FLX 4W-NIS model can work with any of our monitor models if separate input power is provided. However, the 4W-NIS is NOT for intrinsically safe applications and can NOT be used in hazardous locations.

*** The barrier for the MTB-700B is ATEX certified. The certification does not cover the power adapter, which is not ATEX certified.

RUPTURE DISC SELECTION

All BDI-FLX™ Burst Disc Sensor System models can be used with the following rupture disc types, installed in insert type holders for 1" through 12" sizes.

HPX®

HPX-Ta®

LOTRX®

MICRO X®

Composite

Standard

RUPTURE DISC SELECTION

All Sanitary and Integral BDI-FLX™ Burst Disc Sensor System models can be used with the following rupture disc types.

Sanitrx HPX®

Sanitrx HPX® II

LPX™

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