ZANITARY® Series

Sanitary Reverse Acting Metal Rupture Disks

Safety through **knowledge** and **performance**.

About ZOOK

ZOOK is a global market leader with over 90 years of manufacturing expertise, developing high-performance sanitary pressure relief solutions for the pharmaceutical, life sciences, biotech and food & beverage industries. ZOOK is committed to developing pressure relief solutions for customers requiring rigorous sanitary and hygienic standards while maximizing customers' productivity and keeping their people safe.

Global Reach

ZOOK has global locations in the USA, United Kingdom, Canada and Malaysia, with two state-of-the-art manufacturing facilities supplying to over 90 channel partners worldwide.

ZOOK Unique Technology

The new patent pending technology incorporates completely new and unique design and manufacturing processes. Utilizing a materials' natural properties, this exclusive process delivers a superior fatigue resistant and high performance rupture disk. Without indentations or crevices meeting the demanding geometric 3-A requirements, the new ZANITARY disk design ensures that the process side is inherently smooth providing a high purity service.

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The ZANITARY® Series is an advanced sanitary disk designed for the biotechnology, pharmaceutical and food processing industries. The new design effortlessly fits between standard sanitary ferrules.

ZANITARY® Rupture Disk Features

- Ideal for high purity and corrosion resistant service that is required from the Life Science Industry
- Designed for non-fragmentation
- Solid metal robust design provides greater protection for low pressure rated disks
- Operating ratios up to 95% of the low end of burst tolerance (ZAN), and 100% of the low end of burst tolerance (ZAN95)
- Passivation finish to reduce the possibility of contamination
- Standard surface finish 4 - 20 Ra µin (0.1 - 0.5 Ra µm)
- Withstands full vacuum without the need of a separate vacuum support
- Suitable for liquid, gas, or two-phase applications
- Damage ratio of 1.0 or less*
- Expected cycle life of this new disk technology is 30,000 with full vacuum cycling and approximately 1,000,000+ without full vacuum**
- Disks available in 316L and Hastelloy
- Suitable for use with NovAseptic flange mountings
- Unique design is Patent Pending
- No dents or crevices to the process side of the disk
- Ferrule design compliant and certified to 3-A Sanitary Standard
- Sizes from 1”(25mm) through 4”(100mm)
- Cleaned for Oxygen service available
- Nitrogen bagging available
- 3-dimensional stainless steel tag permanently laser engraved with disk information in accordance to ASME and PED
- No paint or enamel used on tagging to ensure non-contamination of the sterile environment
- Suitable for Clean-in-place (CIP) applications. Note: Disk dome should not be subject to contact or direct jet spray
- Electropolishing available meeting ASME BPE SF4
- CRN registered for use in Canada
- Complies ASME BPE Standard
- ASME UD, CE (PED), KOSHA, 3-A and TÜVcompliance available

Hastelloy – Trademark of Haynes International
NovAseptic – Trademark of Millipore Corporation

*Hastelloy and Liner equipped disks have a damage ratio of 1.5 or less
** Lab tested to 1,000,000 cycles (no vacuum), over 30,000 (with full vacuum cycle). Contact factory for specific applications.

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Ferrule Standard and NovAseptic Flanges

The ZANITARY® can be installed into the Tri-Clover, BS, DIN, and ISO Standard ferrules along with the NA tank connectors as per the following:

- Tri-Clover
- ASME BPE
- BS4825-3 1991*
- ISO 2852-1993 (Second Edition 1993-06-15)*
- DIN 32676-2001-02*

*Contact ZOOK for more information

Temperature Testing

Every batch of ZANITARY® disks is tested in environmental chambers at the coincident temperature as specified by the end-user. The use of chart compensation factors are not utilized to ensure the disk meets the exact operating environment as specified by the client.

Stress Relieving

During the production process, stresses are introduced into the disk membrane material from mechanical operations. A heat stress relieving process is applied to each disk to ensure these localized high stress points are eliminated to protect the operating performance of the disk. After stress relieving is complete, all disks are then processed through an eco-friendly passivation operation.

Welded Cartridge

Looking for a welded custom solution? The welded cartridge combines the ZANITARY® product with ZOOK's in-house welding technology:

- Creates a cartridge style design which eliminates risk of disk damage
- Eliminates the need to separate piping system, a true "plug and play" unit
- Eliminates the effect of misaligned or improper line loading on rupture disk
- Creates hermetic seals between disk and ferrule components upstream and downstream of cartridge
- Eliminates the risk of installation damage

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Torque-Rite Nut Features

- An audible “click” indicating correct torque setting
- Maintains the recommended constant 50 inch/pounds force
- Retrofits all sanitary clamps, 1” to 4”
- No torque wrench or special training required
- Torque-rite® sanitary clamp nut (eliminates the problems associated with over/under tightening)

Optional Torque-Rite® Nut

Models

ZAN	Standard operating ratio up to 95% of the low end of burst tolerance
ZAN95	Engineered operating ratio up to 100% of the low end of burst tolerance and includes plus testing as standard

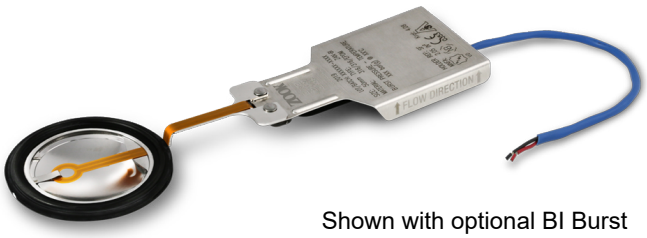
Options

ZAN+	Factory tested to 100% of the low end of the tolerance to ensure no disks will burst low
ZAN-L*	A process side PFA Teflon liner provides extra protection from corrosion or viscous process build-up (PEEK liner required for 3A compliance)
ZAN-BI*	Equipped with ZOOK’s Integral Burst Indicator
ZAN-EP	Electropolishing available in accordance to ASME BPE SF4

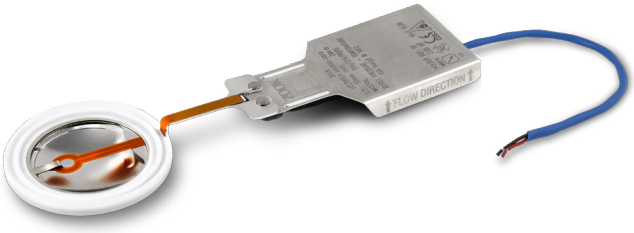
Note: *The maximum temperature rating of rupture disks supplied with liners and BI’s is lower than the base disk material

ECO-Friendly Packaging

- Packaging utilizes FDA compliant coating
- Eco-Friendly Packaging does not contain any plastic
- Individually packed
- Nitrogen atmosphere bagging available



Shown with optional BI Burst Indicator and EPDM gaskets



Sensors and Detectors

- BI Burst Indicator Available*
- Remote Sensor RDI-S Available
- Leak Detector Device Available

* Maximum temperature for a BI is 400˚F (204˚C)

FDA Certified Gaskets

All gasket materials available are certfied to FDA USP Class VI. Gaskets available (other materials on request):

- Viton
- EPDM
- Buna
- PTFE (Teflon)
- Silicone

ZANITARY® Series
Specifications

Minimum and Maximum Pressure Ratings - psig (barg) @ 72°F (22°C)

Disk Size	Minimum Burst Pressure (psig/barg)				Maximum Burst Pressure (psig/barg)	MNFA in² (mm²)	Tri-Clover Ferrule Dimensions in (mm)	
	316L	Hastelloy C276	ZAN-L*	ZAN-BI			Ferrule OD	Tube ID
1”	35	65	85	+5 psig (+0.34 barg) of base material	300	0.43	1.98	0.87
25 mm	2.414	4.482	5.861		20.684	277	50.4	22.1
1-1/2”	15	25	45		250	1.08	1.98	1.37
40 mm	1.035	1.724	3.103		17.236	696	50.4	34.8
2”	11	25	35		180	2.05	2.52	1.87
50 mm	0.759	1.724	2.414		12.410	1322	63.9	47.5
2-1/2”	11	25	35		145	3.25	3.05	2.37
64 mm	0.759	1.724	2.414		9.997	2096	77.4	60.2
3”	11	20	30		120	4.71	3.58	2.87
80 mm	0.759	1.379	2.069		8.273	3038	90.9	72.9
4”	11	20	30		80	8.49	4.68	3.83
100 mm	0.759	1.379	2.069		5.515	5477	118.9	97.4
Max. Temp.	Dependant on the gasket material used							

Notes:

* For PFA Liner, contact ZOOK for PEEK minimums
- For materials, sizes, burst ratings and temperatures not shown, contact ZOOK
- Contact ZOOK for higher temperatures

Manufacturing Design Range & Total Performance Tolerance

Models	ASME					PED			
	Burst Pressure (psig)		Manufacturing Design Range	Burst Tolerance	Operating Ratio*	Burst Pressure (barg)		Total Tolerance	Operating* Ratio
	Minimum	Maximum				Minimum	Maximum		
ZAN95	11.0	<15	0%	±1.3 psig	100%	0.690	<1.034	±0.090 barg	100%
ZAN, ZAN+	11.0	<15	0%	±1.3 psig	95%	0.690	<1.034	±0.090 barg	95%
ZAN95	15.0	<26	0%	±2.0 psig	100%	1.034	<1.793	±0.138 barg	100%
ZAN, ZAN+	15.0	<26	0%	±2.0 psig	95%	1.034	<1.793	±0.138 barg	95%
ZAN95	26.0	<40	0%	±2.0 psig	100%	1.793	<2.758	±0.138 barg	100%
ZAN, ZAN+	26.0	<40	0%	±2.0 psig	95%	1.793	<2.758	±0.138 barg	95%
ZAN95	40	Max	0%	±5 %	100%	2.758	Max	±5%	100%
ZAN, ZAN+	40	Max	0%	±5 %	95%	2.758	Max	±5%	95%

* Operating ratio from minimum of burst tolerance (total tolerance)

Notes:

- 0% manufacturing range might not be available in all materials
- Burst tolerances are the maximum expected variation from the disk’s marked burst pressure

FDA Certified Gaskets (other materials on request)

Standard Gasket Materials (Stocked)			Temperature Range	
Materials	Cured	Colour	Min	Max
Viton	Bisphenol	Black	0° F (-18° C)	400° F (204° C)
Buna	Sulfur		-20° F (-29° C)	230° F (110° C)
EPDM	Peroxide		-67° F (-55° C)	347° F (175° C)
PTFE	-	White	-20° F (-29° C)	500° F (260° C)
Other Available Gasket Materials			**Temperature Range**	
Materials	**Cured**	**Colour**	**Min**	**Max**
Silicone	Peroxide	Red	-65° F (-54° C)	400° F (204° C)
		White		
		Black		
		Clear		
	Platinum	Clear	-76° F (-60° C)	400° F (204° C)
Viton	Bisphenol	White	0° F (-18° C)	400° F (204° C)
Buna	Sulfur		-20° F (-29° C)	230° F (110° C)
EPDM	Peroxide		-67° F (-55° C)	347° F (175° C)

Certified Flow Resistance Factors

Disk Type	K_{rl} (liquid)	K_{rg} (Gas)
ZANITARY	4.08	4.08

Teflon - Trademark of The Chemours Company
Tri-clamp/Tri-clover – Trademark of Alfa Laval
Torque-Rite – Trademark of Rubber Fab

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The ZANITARY® Series includes a ground-breaking rupture disk technology for rigorous sanitary and hygienic applications, utilizing the patent pending ZOOK Unique technology. The innovative manufacturing process and advanced design provides the best solution for high-performance pressure relief solutions.

Industries

Pharmaceutical

Life Sciences

Biotechnology

Food & Beverage

Applications

Autoclaves	Drying & Mixing Equipment	Process Piping
Bioreactors	Fermenters	Process & Transport Vessels
CIP & SIP Skids	Filters	Safety Valve Protection
Clean Steam Piping	Heat Exchangers	Storage Tanks

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Sanitary Clamps

ZOOK offers tri-clamp fittings for use with sensors and ZANITARY® Series disks. Options are also available for high burst pressure disks.

Torque Rite Nut

The Torque Rite Nut retrofits all sanitary clamps, with no torque wrench or special training required and eliminates the problems associated with over/under tightening. An audible "click" indicates the correct inch/pounds force maintaining the recommended constant 50 inch/pounds force.

RDI-S Sensor

The RDI-S is a one-time use sensor that installs into a sanitary spool located on the ventside of a sanitary bursting disk assembly. Upon rupture of the disk, the RDI-S alarm circuit is opened by the flowing media. Fits easily into existing piping systems.

Sanitary Ferrules

ZOOK can supply 316L ferrule connections and spool pieces to meet the appropriate standard required by the customer.

Safety through **knowledge** and **performance**.

ZOOK is committed to finding pressure relief solutions for our customers that maximize their productivity and performance while keeping them safe. ZOOK is a global market leader with over 90 years of manufacturing expertise of high quality metal & graphite rupture disks and other pressure relief products. ZOOK has global locations in the USA, United Kingdom, Canada and Malaysia, with state-of-the-art manufacturing facilities in Canada and the USA.

Our products are sold in 65+ countries and to-date have over 6,000 customers buying our products worldwide.

We are dedicated to investing heavily in the latest technology and production to stay competitive in the marketplace, and are able to offer comprehensive solutions to the selection and sizing of products best suited for each customer application.

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