

Pharmaceutical



Experts in pressure
management solutions for
the Pharmaceutical industry.

About Elfab

Overview

Dedicated to protecting the lives of your people and safeguarding your critical processes and equipment, Elfab is a leading provider of pressure management solutions for the pharmaceutical and biopharmaceutical industries.



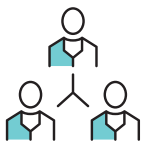
Elfab Expertise

With extensive experience in providing solutions to optimise pharmaceutical manufacturing, we understand the rigorous demands which need to be met to help you achieve and exceed your operational reliability and efficiency goals.



Innovation

Our innovative technologies include state of the art pressure management solutions for a variety of applications and a wide range of process conditions in both pharmaceutical and biopharmaceutical manufacturing.



Partnership Approach

Through our partnership approach we will work with you to introduce solutions to drive efficiencies and reduce cost of ownership, engaging with you at either group or individual plant level, depending on the requirements of your organisation.



Safety First

We understand the paramount importance of preventing catastrophic process failures resulting from an overpressure event which could lead to injury or damage to plant equipment. Our primary focus is to provide you with the highest quality solution and by alleviating potentially dangerous pressure build-up we ensure your processes are safe.

Global Reach

Our specialist global Pharmaceutical Team is supported by two manufacturing facilities, Elfab in North Shields (UK) and Oseco in Broken Arrow (USA), regional sales offices and a network of channel partners dedicated to our Pharmaceutical customers.



Contact Us

To discuss your pressure relief requirements with a member of our Pharmaceutical Team, please contact us:

Email: pharmasales@elfab.com

Tel (UK): +44 (0)191 293 1234

Tel (US): (918) 258-5626

Pharmaceutical Solutions

Meeting the demanding requirements of the pharmaceutical process environment is vital for your success. Our portfolio offers an ideal solution for the stringent market requirements and is designed to protect a variety of processes and critical equipment such as reactors, pumps, heat exchangers and other processing equipment.

Opti-Gard

Our Opti-Gard rupture disc is a high performance, full metal non-fragmenting reverse acting disc delivering unparalleled fatigue resistance and longevity in the process. It withstands full vacuum without the need of supports. The disc's smooth surface finish helps to prevent a build-up of contaminants, allowing easy cleaning, and is designed to sustain the rigours of Clean-in-Place procedures.

Low Pressure Solutions

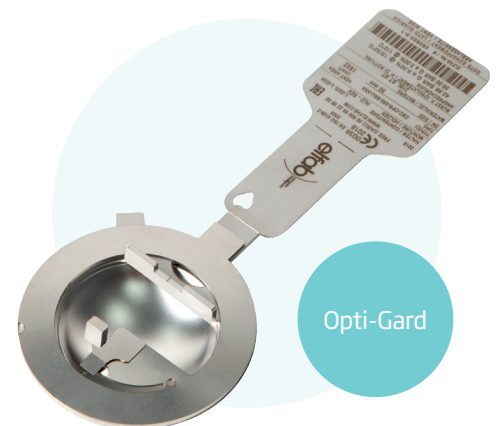
Elfab's Opti-Gard SoLo is a low pressure variant of our Opti-Gard and is suitable for use in processes where pressures are as low as 2 psig. The full metal, non-fragmenting design allows customers to protect low pressure applications and prevent contamination caused by alternatives such as graphite or composite designs.

Our ultra-low pressure disc, Milli-Gard, delivers overpressure protection at extremely low pressures down to 0.044 psig.

Detection

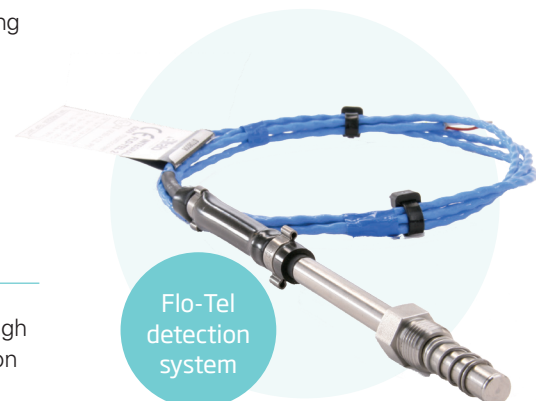
Our range of rupture discs can be integrated into process control systems through the use of our non-invasive Flo-Tel detection system. Providing a fail-safe solution for identifying when a rupture disc functions, Flo-Tel is a reusable solution. And with no upstream or downstream contact with your product, it is unaffected by downstream pressure fluctuations. This eliminates spurious alarms, minimising the risks of unscheduled process stoppages.

In addition to these products, we also offer pressure relief solutions for specialised process requirements. Please refer to the technical specifications section or contact us for more details.



Opti-Gard

- Reverse acting
- High performance
- Non-fragmenting
- Smooth surface finish (Ra value: 0.4)



Flo-Tel detection system

- Non-invasive
- Re-usable



Milli-Gard

- Reverse acting
- Ultra-low pressure
- Composite

Rupture Discs												Holders and Detection			
Pharmaceutical Solutions	Opti-Gard	Opti-Gard SoLo	Milli-Gard	Safe-Gard	FAS	Arma-Gard Graphite	G2 Graphite	Reverse Acting Holder	Forward Acting Holder	Flo-Tel	Test-Tel				
Product Description	Full metal High performance Reverse acting	Full metal High performance Low pressure Reverse acting	Composite Ultra low pressure Reverse acting	Full metal	Full metal High pressure Full liquid service	Non-torque sensitive graphite disc Holderless design for easy installation directly between industry flanges	Forward Acting Graphite	Multi-flange design holder	Multi-flange design holder	Non-invasive Reusable detection	Portable tool to check disc installation				
Common Applications	Reactors Pumps Heat exchangers	Glass dryers Evaporators etc	Storage tanks	High pressure applications Liquid applications with sanitary connections	Low Kr applications	Glass dryers Evaporators etc	Glass dryers Evaporators etc	For use with Opti-Gard, Opti-Gard SoLo and Milli-Gard	For use with Safe-Gard, G2 Graphite	Integration of rupture disc to process control systems	For use with Flo-Tel enabled rupture discs				
ASME UD Certification	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓				
Technical Specification															
Size Range DN inches (mm)	1 – 24 (25 – 600)	1 – 6 (25 – 150)	2 – 12 (50 – 300)	< 0.5 – 20 (15 – 500)	1 – 24 (25 – 600)	1 – 14 (25 – 350)	1 – 12 (25 – 300)								
Burst Pressure Range in psi(g)	5 – 1,015	2 – 60	0.044 – 7.25	51 – 2,680	30 – 5,000	0.44 – 798	1 – 290								
Burst Pressure Range in bar(g)	0.35 – 7.0	0.14 – 4.14	3 mbar(g) – 500 mbar(g)	3.1 – 185	2.07 – 344	0.03 – 55	0.07 – 20								
Temperature Range	-200°C to 600°C	-200°C to 600°C	-40°C to 150°C	-200°C to 600°C	-200°C to 600°C	-50°C to 180°C	-50°C to 180°C								
Operating Ratio	95%	95%	60%	90%	90%	85%	85%								
Tolerance	+/-3%	+/-3%	+/-25%	+/-5%	+/-5%	+/-10%	+/-10%								
Non-fragmenting	✓	✓	✓	✓	✓	x	x								
Vacuum Resistant	✓	✓	✓	✓	✓	x	x								
Kr Values	1.74	0.8	n/a	0.68	0.223 G / 0.19 L	0.69	n/a								
Process															
Gas + Liquid	✓	✓	x	✓	✓	✓	✓								
Gas	✓	✓	✓	✓	✓	✓	✓								
Liquid only	x	x	x	✓	✓	✓	✓								
Materials Available															
Stainless Steel	✓	✓	✓	✓	✓	x	x								
Hastelloy	✓	✓	✓	✓	✓	x	x								
Inconel	✓	✓	✓	✓	✓	x	x								
Monel	✓	✓	✓	✓	✓	x	x								
Tantalum	✓	✓	✓	✓	x	x	x								
Nickel	✓	✓	✓	✓	✓	x	x								
Graphite	x	x	x	x	x	✓	✓								
Linings	✓	Product-specific	x	✓	✓	✓	✓								

Biopharmaceutical Solutions

The high risk of contamination in the biopharmaceutical manufacturing process and the operational challenges that this complexity presents drives the need for equipment specifically designed for the unique environment.

Rupture Discs

Our biopharmaceutical pressure relief portfolio includes solutions for the whole spectrum of pressure ranges in bioprocesses. Opti-Gard Ferrule and Opti-Gard Ferrule SoLo have all the benefits of our Opti-Gard Pharmaceutical range and are suitable for use with sanitary (hygienic) fittings.

Detection

Our range of rupture discs can be integrated into process control systems through the use of our non-invasive Flo-Tel detection system. Providing a fail-safe solution for identifying when a rupture disc functions, Flo-Tel is a reusable solution. And with no upstream or downstream contact with your product, it is unaffected by downstream pressure fluctuations. This eliminates spurious alarms, minimising the risks of unscheduled process stoppages.

Our sanitary Flo-Tel detection system is designed for use with sanitary tri-clamps, NA Connect and other sanitary connections.

In addition to these products, we also offer pressure relief solutions for specialised process requirements. Please refer to the technical specifications section or contact us for more details.



Opti-Gard Ferrule

- Reverse acting
- High performance
- Non-fragmenting
- Smooth surface finish (Ra value: 0.4)
- For use with sanitary connections



Flo-Tel with sanitary connection

- Non-invasive
- Re-usable
- For use with sanitary connections

Biopharmaceutical Solutions				Rupture Discs						Holders and Detection			
Product Description	Opti-Gard Ferrule	Opti-Gard Ferrule SoLo	Safe-Gard Ferrule	BioFlat Composite	Bio-Gard	PRO-S	FM-S	FAS-S	Sanitary Reverse Holder	Sanitary Flo-Tel	Test-Tel		
Common Applications	Full metal High performance For use with sanitary connections	Full metal High performance For use with sanitary connections Low pressure	Full metal High pressure	Ultra low pressure	Low pressure	Full metal High performance For use with sanitary connections	Ultra low pressure	Full metal	For use with Pharmaceutical discs	Non-invasive Reusable For use with sanitary tri-clamps, NA Connect	Portable tool to check disc installation		
	Bioreactors Fermentation plants Chromatography columns Steam infrastructure	Bioreactors Fermentation plants Chromatography columns Steam infrastructure	High pressure applications Liquid applications with sanitary connections	Bioreactors Fermentation plants Chromatography columns Steam infrastructure	Bioreactors Fermentation plants Chromatography columns Steam infrastructure	Bioreactors Fermentation plants Chromatography columns Steam infrastructure	Bioreactors Fermentation plants Chromatography columns Steam infrastructure	High pressure applications Liquid applications with sanitary connections	Hygienic plant with non-hygienic disc	Integration of rupture disc to process control systems. For use with sanitary connections	For use with all Flo-Tel enabled rupture discs		
	✓	UD approval pending	✓	n/a	n/a	✓	✓	✓	✓	✓	✓		
	ASME UD Certification												
Technical Specification													
Size Range DN inches (mm)	1 – 4 (25 – 100)	1 – 4 (25 – 100)	1 – 4 (25 – 100)	1 – 6 (25 – 150)	1 – 2 (25 – 50)	1 – 4 (25 – 100)	1 – 4 (25 – 100)	1 – 4 (25 – 100)					
Burst Pressure Range in psi(g)	13 – 300	5 – 75	51 – 2,680	0.5 – 1.5	29 – 145	16 – 150	1 – 100	55 – 1,500					
Burst Pressure Range in bar(g)	0.9 – 20.7	0.35 – 5.2	3.5 – 185	0.03 – 0.1	2 – 10	1.1 – 10.3	0.07 – 6.9	3.79 – 103					
Temperature Range	-40°C to 300°C	-40°C to 200°C	-40°C to 200°C	-40°C to 200°C	-40°C to 200°C	-40°C to 200°C	0°C to 232°C	-40°C to 200°C					
Operating Ratio	95%	95%	90%	60%	90%	90%	60%	90%					
Tolerance	+/-3%	+/-3%	+/-5%	+/-5%	+/-10%	+/-5%	+/-5%	+/-5%					
Non-fragmenting	✓	✓	✓	✓	✓	✓	✓	✓					
Vacuum Resistant	✓	✓	✓	Partial: with vac support	✓	✓	Partial: with vac support	✓					
Kr Values	1.74	Pending	0.69	n/a	n/a	5.07	n/a	n/a					
Process													
Gas + Liquid	✓	✓	✓	✓	x	✓	✓	✓					
Gas	✓	✓	✓	✓	✓	✓	✓	✓					
Liquid only	x	x	✓	✓	x	✓	✓	✓					
Materials Available													
Stainless Steel	✓	✓	✓	✓	✓	x	✓	x					
Hastelloy	✓	✓	✓	✓	✓	x	x	x					
Inconel	✓	✓	✓	✓	✓	x	x	x					
Monel	✓	✓	✓	✓	✓	x	x	x					
Tantalum	✓	✓	✓	✓	✓	x	x	x					
Nickel	✓	✓	✓	✓	✓	x	x	x					
Graphite	x	x	x	x	x	x	x	✓					
Linings	x	x	✓	✓	x	✓	✓	✓					



Elfab Limited
Alder Road, North Shields
Tyne & Wear, NE29 8SD
UK
T: +44 (0)191 293 1234
E: pharmasales@elfab.com

Oseco
1701 W. Tacoma, Broken Arrow
OK 74012
US
T: (918) 258-5626
E: pharmasales@elfab.com