Safety is for life.

Explosion Safety | **Process Safety** | Industrial Measurement

REMBE® PROCESS SAFETY

Pressure and Vacuum Relief

Consulting. Engineering. Products. Service.

REMBE® PROCESS SAFETY – THE SAFE CHOICE FOR PRESSURE AND VACUUM

REMBE® has been a global market leader in the area of pressure relief for over 40 years. As well as a comprehensive range of consulting services we also supply a broad spectrum of state-of-the-art rupture discs for a variety of applications in many different sectors. These include the Oil + Gas, Petrochemical, Aerospace and Pharmaceutical Industries, Food Processing sectors and Medical-Technical systems among others. Our rupture discs are always manufactured individually to meet the specific existing requirements of our customers' processes.

All our rupture discs are **Made in Germany.** We appreciate that in an emergency you need assistance as quickly as possible. This is why we offer the REMBE® Rush Order Service, which supplies replacement components and products rapidly. We can identify your rupture disc immediately and manufacture spare parts to exactly the same specifications. This enables you to **resume production quickly and cost-effectively with minimum downtime.**

As well as quality and reliability, compliance with international standards is one of our major priorities. Our rupture discs are certified in accordance with the Pressure Equipment Directive (PED) and a wide range of other international standards.

Put your trust in our high quality products and services and find out just how easily and cost-effectively you can optimise the safety of your processes with rupture discs from REMBE®.

We look forward to receiving your call!

Stefan Penno
Managing Director

Content

PROCESS SAFETY BASICS

The dangers of excessive pressure

Overpressure and vacuum is feature of virtually every production process. If the pressure rises above or falls below the specified limits, major damage to plant components may result. The consequences are production standstills and serious commercial losses. A reliable and fast reacting pressure relief system is therefore essential to protect the plant in case the pressure rises above or falls below these limits.

What is a rupture disc?

Rupture discs are non-reclosing safety devices with precisely defined breaking points. They respond very quickly to pressure and can be used to implement pressure relief in many different applications. They protect plants, people, the environment and machinery against the dangers resulting from excessive overpressure or vacuum within a process.

Rupture discs were originally a very simple solution. However, over recent years, designs have advanced significantly to accommodate changing system requirements, such as pressure cycling, higher process temperatures and the increasing role played by technology in many industrial processes. The greatest advantage of rupture discs over electronic and pneumatically operated safety systems is their reliability – **this makes them one of the most important fail-safe safety devices in industrial operations.**

Here you can find an overview of all REMBE® rupture discs and their application areas.

REMBE® rupture discs and their applications

Industries and applications	KUB®	KUB® clean	IKB®	UKB-LS	ODV	STAR
						
Oil & Gas	✓	✓	✓		✓	
Petrochemical	✓	✓	✓		✓	
Chemical	✓	✓	✓	✓	✓	
Geothermics	✓		✓			
Energy	✓	✓	✓		✓	
Cyrogenics	✓	✓	✓	✓		
Pharmacy	✓	✓	✓	✓		
Aerospace				✓		
Nuclear technology	✓			✓	✓	
Military	✓				✓	
Plastics	✓		✓			
Air conditioning	✓	✓	✓		✓	
Food	✓	✓	✓	✓		
Beverage	✓					
Sanitary applications		✓		✓		
Water-conditioning	✓	✓	✓		✓	
UHV (Ultrahigh vacuum)				✓		
Liquid gas	✓				✓	
Hydraulics	✓				✓	
Pumps	✓				✓	
Storage Tanks				✓	✓	

Your industry or application is not listed? Please contact us.

	ZW 	Single Layer Discs 	Flat discs 	Plug type disc 	Extruder discs 	ELEVENT® 
✓	✓	✓		✓		✓
✓		✓		✓		
✓	✓	✓	✓	✓		✓
	✓					
✓	✓	✓				✓
				✓		
	✓			✓		✓
				✓		
✓				✓		
✓			✓	✓		
		✓		✓	✓	
✓		✓	✓	✓		
	✓				✓	✓
	✓		✓	✓		
✓			✓	✓		
✓		✓				
✓		✓		✓		
✓		✓				
✓	✓		✓			

The advantages of rupture discs

- **Instant response –** nothing reacts faster than a rupture disc. Excessive overpressure and vacuumis relieved in milliseconds.
- **Full vent area available for pressure relief**
- **Full bore opening –** across the full width of the vent for fast and safe pressure relief.
- **Leak-tight –** prevents media from escaping during normal operation and thus reduces the costs and problems associated with such losses.
- **Economic solution –** significant cost savings compared to other safety systems for pressure relief.

What should I be aware of when selecting a rupture disc?

Reliable and cost-effective REMBE® rupture discs are not standardised products. Our specialists always adapt them individually to the specific operating conditions of your processes.

We consider a wide range of parameters to ensure that every rupture disc functions perfectly.

These parameters include:
- The plant components to be protected
- Process medium
- Operating pressure
- Vacuum/cycles
- Burst pressure
- Burst temperature
- Nominal size required
- Mass flow to be discharged

Contact us – we will be happy to advise you about the most suitable rupture discs for your process. Individually, in detail and taking all relevant parameters into account.

Rupture discs from REMBE®

REMBE® rupture discs are high precision safety devices that incorporate state-of-the-art technology. They are individually manufactured and tested for every application. When the pressure reaches a pre-defined limit the rupture disc opens to relieve the system. Our rupture discs can be used as either a primary or secondary relief devices. They can also be used in combination with safety valves. The advantage here is that the valve is protected against contamination by the product or corrosion damage. This is often an attractive and cost-effective option.

Made in Germany

All REMBE® rupture discs are **Made in Germany** and certified in accordance with the Pressure Equipment Directive (PED – 97/23/EC) as well as all widely recognised and sector-specific international regulations and standards. Among others, these include ASME Sec. VIII, Div. 1, China Manufacture License, KOSHA (South Korea), GOST-RT, RTN (Russia).

SAFETY IS FOR

Our mission: your safety

Operational safety is an important responsibility. In fact, it's a mission to which we've dedicated ourselves wholeheartedly for over 40 years now. Throughout the world our experts have a single aim – to provide the best possible protection for your systems and processes.

You'll benefit from our decades of experience which ensures that you always receive an honest analysis and products of the highest quality. Working diligently and responsibly, our attention is fully focused on the customised optimisation of your routines, manufacturing processes and products

Consulting

We don't just work at our desks.
We also work on your premises.

Each production facility is different and has different requirements. This is why our experts have a close look at your entire plant with you to determine what's genuinely reasonable and what will be the best solution for you. It's your perfect investment in safety.

Solutions off-the-peg? Not from REMBE®.
Once we've looked at all the relevant documents, we will identify all the existing gaps for improvement and create a profitable safety and measuring policy for you that is perfectly geared to suit your company.

Engineering

We don't just make recommendations.
We give you the best solution.

From the paper to production: you will have a safety system that is perfectly tailored to suit your needs and operational requirements.

Whether it's explosion safety or process safety, our engineering ensures that you get the best solution at all times – made in Germany.

Quality – the key to your safety

Our products are manufactured according to the latest, up-to-date international standards for management systems, pressure equipment and explosion safety devices. As well as prioritising quality and reliability, we attach major importance to eco-friendly technologies, manufacturing processes and compliance with standards. High-quality materials from controlled sources ensure that our products have exceptionally long lifetimes.

LIFE.

A decision for REMBE® means opting for perfect safety. As an independent medium-sized German company, we supply products made in Germany – a further bonus for your safety. Moreover, you will always have the support of our experts in matters of process safety, explosion protection and industrial measuring technology – 24/7, all the year round. It's our promise!

Products

Our products are not just excellent.
They are approved and certified.

Good is never good enough for us. And so we keep putting ourselves on the test bench. The result is safety products and measuring equipment licensed under globally recognised and industry-specific standards and regulations.

Moreover, we are the first company worldwide to offer SIL-equivalent parameters for mechanical (flameless) explosion venting products and the relevant signallers.

This high quality standard makes perfect economic sense for you. Our extensive product range ensures that you always receive the most cost-effective and reliable solution for your needs.

We take responsibility for the big picture. With us you get everything from a single source, thus ensuring good profitability and legal security.

Service

Downtime cost money.
Our service never stands still – throughout the world.

From start-up to regular maintenance – we ensure that your production runs smoothly and without disruptions. All the products we supply can be identified by their batch and serial numbers for many decades, allowing exact reproduction.

If you're ever in a hurry, why not use our Rush Order Service? We can guarantee that you're given the highest priority and that your product is made straight away. Depending on the destination, we'll deliver within less than 24 hours. This also applies to spares, additional items and custom designs.

REMBE® speaks your language.
Our global network of offices and our many international experts can guarantee that we always understand you and your needs. Just give us a call.

Certifications

Management systems
EN ISO 9001:2008, ISO/TS 29001:2010, KTA 1401
Products
DGRL 97/23/EG, ASME Sec. VIII, Div. 1, China Manufacture Licence, KOSHA (South Korea), ATEX RL 94/9/EG, FM Global, GL, CSA, GOST-RT, RTN (Russia)

Testing standards
AD 2000 Datasheet A1, EN ISO 4126/2, EN 1127-1/ -13463/-14373/-14491/-14797/-14994/-15233/-16009/ -16447, VDI 3673, NFPA 68, NFPA 69, IEC 61508
Air cargo safety
Known Consignor (KC/00912/01/0218)

REVERSE ACTING RUPTURE DISCS

Maximum reliability at high standard operating pressure ratios

Reverse acting rupture discs are installed with the domed side of the rupture disc facing the process. In this configuration, the rupture disc offers a higher standard operating ratio and better vacuum resistance. It is more resistant, more rugged and gives a longer service life.

A higher standard operating ratio allows you to operate your system under a higher load without the risk of fatigue in your rupture disc. Since REMBE® rupture discs have an exceptionally long service life, they minimise the risk of commercial losses caused by production downtime.

A specially developed production process using lasers guarantees that REMBE® rupture discs offer maximum reliability, precision and manufacturing repeatability.

KUB®

The indestructable rupture disc

KUB® is the most robust rupture disc on the market!

KUB® is the ideal solution for a wide range of challenging industrial processes with low to high operating pressures or vacuum, e.g. in liquid, gas or vapour applications as well as in two-phase flow applications.
It is used as a primary pressure relief device but also as a secondary device for isolating and protecting safety valves.

Using Leonard Euler's formula, we developed a unique cut profile – known as buckling pins – for the burst element. These are cut into the burst element using state of the art lasers. Careful selection of the materials, the buckling pin geometry and a separate sealing element gives you exceptionally accurate control over the response pressure at a **standard operating ratio of up to 98 %.**

Your advantages

- Extremely robust design ensures a **very long service life** – for less production downtime.
- **No rupture disc fatigue,** even at high operating ratios.
- **Broad range of pressures and nominal size possible,** also ideal for pure liquid applications.
- Reliable disc holder system makes it **impossible to install the rupture disc incorrectly.** No special tools or training required.
- **Metal-on-metal seal** prevents gases escaping, reduces emissions and thus protects the environment.
- **Simple to install without damage:**
  The torque required for the flange connection is independent of the type of rupture disc used.

Made in Germany

Design

KUB® has a two layer design: The smooth, unblemished surface of the sealing membrane is in contact with the process. The buckling pin element, which defines the burst pressure, is vent side of the disc and is isolated from the process medium.

The two layer design opens up interesting opportunities for combining different materials. For example, you could use a corrosion-resistant sealing membrane and a temperature-resistant buckling pin element.

REMBE® innovation – unique in the market:

The KUB® rupture disc has a robust design and can be removed, inspected, cleaned and reinstalled.
Any damage is easy to detect with the naked eye.

Technical data

Buckling Pin Element		Stainless Steel		Stainless Steel		Stainless Steel		Stainless Steel		Stainless Steel		Stainless Steel	
Sealing Membrane		Stainless Steel		Hastelloy*		Titanium		Tantalum		Monel*		Nickel	
max. allowable temperature		400 °C		400 °C		300 °C		400 °C		400 °C		400 °C	
NPS [in]	DN [mm]	Burst Pressure at 22 °C [barg]											
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
¾"	20	3.2	130	3.5	130	5.0	130	5.0	130	3.0	130	3.5	130
1"	25	2.0	150	2.5	180	3.0	150	3.0	150	3.0	150	2.5	150
1¼"	32	2.5	100	5.0	100	3.0	110	3.0	110	3.0	100	3.0	100
1½"	40	1.5	140	1.5	150	2.0	140	2.0	140	2.0	140	1.5	140
2"	50	1.0	120	1.2	130	2.0	120	2.0	120	1.8	120	1.2	120
2½"	65	1.0	100	1.0	110	2.0	100	2.0	100	1.8	100	1.0	100
3"	80	0.50	95	0.80	100	1.5	95	1.5	95	1.0	95	0.80	95
4"	100	0.40	80	0.50	90	0.55	80	0.50	80	0.50	80	0.50	80
5"	125	0.40	60	0.40	70	0.50	60	0.50	60	0.50	60	0.40	60
6"	150	0.30	45	0.30	50	0.50	45	0.50	45	0.40	45	0.30	45
8"	200	0.30	35	0.30	40	0.40	35	0.40	35	0.40	35	0.30	35
10"	250	0.30	25	0.30	30	0.30	25	0.30	25	0.30	25	0.30	25
12"	300	0.20	15	0.20	18	0.30	15	0.30	25	0.20	15	0.25	15
14"	350	0.20	12	0.20	15	0.20	15	-	-	0.20	12	0.20	12
16"	400	0.20	10	0.20	10	0.20	10	-	-	0.20	10	0.15	10
18"	450	0.20	6.0	0.30	10	0.10	6.0	-	-	0.15	6.0	0.15	6.0
20"	500	0.15	6.0	0.15	6.0	0.10	6.0	-	-	0.10	6.0	0.15	6.0
24"	600	0.15	4.0	-	-	-	-	-	-	-	-	-	-
26"	650	0.15	3.0	-	-	-	-	-	-	-	-	-	-
28"	700	0.15	2.5	-	-	-	-	-	-	-	-	-	-
30"	750	0.10	1.5	-	-	-	-	-	-	-	-	-	-
32"	800	0.10	1.5	-	-	-	-	-	-	-	-	-	-

Buckling Pin Element		Hastelloy*		Nickel		Inconel*		Monel*		Titanium		Tantalum	
Sealing Membrane		Hastelloy*		Nickel		Inconel*		Monel*		Titanium		Tantalum	
max. allowable temperature		400 °C		400 °C		600 °C		420 °C		300 °C		400 °C	
NPS [in]	DN [mm]	burst pressure [barg]											
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
¾"	20	4.0	130	3.0	110	5.0	125	3.0	90	5.0	90	5.0	90
1"	25	3.0	200	2.5	100	3.0	150	3.0	90	3.0	90	3.0	90
1¼"	32	5.0	100	3.0	75	4.0	100	2.5	70	5.0	70	4.0	70
1½"	40	2.0	150	1.5	90	2.5	140	2.0	70	2.0	70	2.0	70
2"	50	1.5	130	1.2	80	2.0	120	1.8	60	2.0	60	2.0	60
2½"	65	1.5	110	1.0	70	1.5	100	1.8	40	2.0	40	2.0	40
3"	80	1.2	100	0.80	60	1.0	95	1.0	40	2.0	40	1.5	40
4"	100	1.0	90	0.50	45	1.0	80	0.50	30	1.5	30	0.50	30
5"	125	1.0	70	0.40	30	0.80	60	0.50	25	1.0	25	0.80	25
6"	150	0.80	50	0.30	25	0.60	45	0.40	20	0.50	20	0.50	20
8"	200	0.50	40	0.30	16	0.40	35	0.40	12	0.40	12	0.40	10
10"	250	0.40	30	0.30	12	0.40	25	0.30	10	0.30	10	0.30	7.0
12"	300	0.30	18	0.25	10	0.35	15	0.20	7.0	0.20	7.0	0.30	4.0
14"	350	0.30	15	0.20	8.0	0.30	12	0.20	5.0	0.20	6.0	-	-
16"	400	0.20	10	0.15	5.0	0.25	10	0.20	4.0	0.20	4.0	-	-
18"	450	0.30	8.0	0.20	4.0	0.15	6.0	0.10	3.0	0.20	4.0	-	-
20"	500	0.20	6.0	0.15	4.0	0.20	6.0	0.10	3.0	0.10	4.0	-	-
24"	600	-	-	0.15	-	0.20	4.0	-	-	-	-	-	-
26"	650	-	-	0.15	-	-	3.0	-	-	-	-	-	-
28"	700	-	-	0.15	-	-	2.5	-	-	-	-	-	-
30"	750	-	-	0.15	-	-	2.0	-	-	-	-	-	-
32"	800	-	-	0.15	-	-	2.0	-	-	-	-	-	-

*Company Names or trademarks combined with material descriptions are only used for description purposes. The product promoted is not product of the respective companies and trademarks.

Different sizes, pressure classes, temperatures, materials and fittings available on request.

KUB®CLEAN

For applications with strict hygiene requirements

KUB® clean raises the bar in the field of sanitary rupture discs: KUB® has a completely leak-tight and smooth design that guarantees perfect hygiene standards in sanitary applications.

Best feature: KUB® clean is simple to install in existing tri-clamp flange systems. It complies with all hygienic design requirements and is suitable for CIP and SIP applications.

The smooth surface of the sealing membrane, integrated gasket and direct installation into tri-clamp flange systems mean that this rupture disc has no score lines, indentations or notches on the process side, which can trap dirt or product residues during production or cleaning cycles. This makes KUB® clean ideal for use in aseptic and sanitary applications.

Your advantages

- **Easy-to-replace, integrated clamp gasket (compliant with FDA- and USPSS Class VI).**
- Extremely robust design ensures a **very long service life** for shorter production downtime.
- **Broad range of pressures** and nominal size possible.
- **Easy to install** directly in tri-clamp flanges.
- **Fulfils all the requirements of hygienic design.**

Technical data

NPS [in]	DN [mm]	min. burst pressure [barg]	max. burst pressure [barg]	max. temperature [°C]	min. vent area* [cm²]
DIN 32676, pipe standard DIN 11866 range A (DIN)					
1"	25	3.5	10	130	3.0
1¼"	32	2.0	10	130	5.0
1½"	40	2.0	10	130	8.0
2"	50	1.5	8.0	130	14
2½"	65	1.0	7.0	130	25
3"	80	1.0	6.0	130	40
4"	100	0.6	5.0	130	62
DIN 32676, pipe standard 11866 range B (ISO)					
1"	25	3.5	10	130	3.5
1½"	40	2.0	10	130	10
2"	50	1.5	8.0	130	18
3"	80	1.0	6.0	130	42
DIN 32676 pipe standard 11866 range C (inch)					
1"	25	3.5	15.0	130	2.2
1½"	40	2.0	11.0	130	6.5
2"	50	1.5	6.5	130	13
2½"	65	1.0	3.0	130	21
3"	80	1.0	5.3	130	32
4"	100	0.10	4.4	130	60

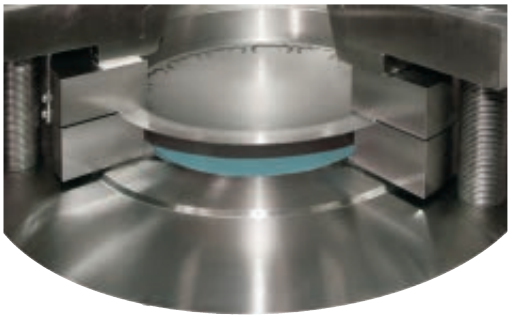
*Vent area compliant with PED certification, MNFA (ASME Sec. VIII, Div. 1) may vary.
Temperature range for rupture discs with CE mark may vary.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

Made in Germany

KUB® V

For isolating safety valves

The KUB® V rupture disc protects safety valves against corrosive solids or adhesive media and is installed upstream of the safety valve inlet. It is certified to resist a back pressure of 135 % of the defined burst pressure and thus enables you to test safety valves in-situ without having to remove the valve for servicing.



Your advantages

- **Longer service life and service intervals** for the safety valve due to isolation of the valve from the process.
- **Reduction in safety valve maintenance costs** and the amount of production downtime required by in-situ tests.
- **You can use safety valves manufactured from lower cost materials** because they are isolated from the process medium during normal operation.
- **Leak-tight design** prevents emissions.

KUB® V:
Reliable protection of safety valves against corrosive media

Made in Germany

Technical data

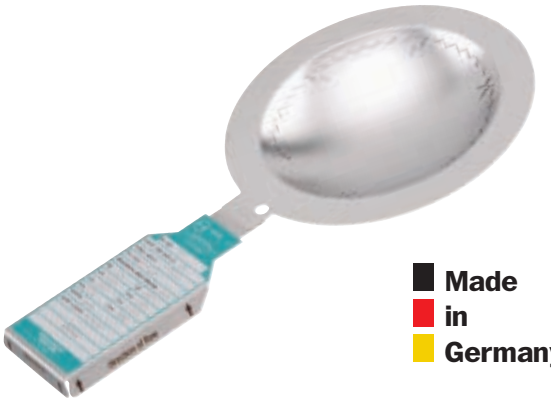
NPS [in]	DN [mm]	Min. vent area* [cm²]
¾"	20	3.4
1"	25	5.5
1¼"	32	9.5
1½"	40	13
2"	50	22
2½"	65	35
3"	80	50
4"	100	80
5"	125	120
6"	150	180
8"	200	280
10"	250	440
12"	300	650
14"	350	860
16"	400	1100
18"	450	1485
20"	500	1855
24"	600	2515
26"	650	3100
28"	700	3680
30"	750	4250
32"	800	4470

*Vent area compliant with PED certification, MNFA (ASME Sec. VIII, Div. 1) may vary.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

KUB® F

For installation directly between flanges

For burst pressures of up to 1 barg, the KUB® can be installed directly between flanges in a variety of applications. This makes it ideal for applications in which reliability and a precise design pressure in the low pressure range are essential.



Made in Germany

Technical data

NPS [in]	DN [mm]	Min. vent area* [cm²]
1"	25	3.5
1¼	32	7.0
1½"	40	9.5
2"	50	17
2½"	65	25
3"	80	35
4"	100	68
5"	125	90
6"	150	125
8"	200	245
10"	250	400
12"	300	600
14"	350	750
16"	400	1000
18"	450	1430
20"	500	1660
24"	600	2150
28"	700	2500
30"	750	3500
30"	750	4200
32"	800	4470

*Vent area compliant with PED certification, MNFA (ASME Sec. VIII, Div. 1) may vary.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

You can find detailed information and contact details for enquiries relating to KUB®, KUB® clea, KUB® V and KUB® F at www.rembe.de. Or just give us a call: T +49 2961 7405-0, info@rembe.de.

You can find appropriate rupture disc holders and signalling devices from page 28.

IKB®

The reverse acting rupture disc with the patented manufacturing process

The IKB® rupture disc was developed to provide reliable protection against excessive overpressure and vacuum in equipment such as pressure vessels, pipe systems, gas cylinders and reactors. It is suitable for applications with medium to high pressures, gases, vapours and liquids[1] as well as for isolating safety valves. IKB® permits a standard operating ratio of max. 90 %.

The patented manufacturing process produces an instant, full and fragmentation-free opening across the full width of the vent. High quality rupture disc produced without the need for mechanical scoring or knife constructions.

Your advantages

- **Maximum safety even at high pressures.**
- **You can use safety valves manufactured from lower cost materials** because they do not come into contact with the medium during normal operation.
- In-situ tests **reduce safety valve maintenance costs.**

IKB® with rupture disc holder for maximum safety.
Installation is extremely simple, torque-independent and requires no special tools.

Made in Germany

Technical data

Min. vent area*

NPS [in]	DN [mm]	Min. vent area* [cm²]	Installation hight [mm]
¾"	20	3.4	41
1"	25	5.5	46
1½"	40	13	46
2"	50	22	53
3"	80	50	60
4"	100	80	68
6"	150	180	80

Pressure range*

NPS [in]	DN [mm]	min. burst pressure [barg]	max. burst pressure [barg]
¾"	20	8.0	100
1"	25	3.5	100
1½"	40	2.0	64
2"	50	1.5	64
3"	80	1.0	40
4"	100	0.80	40
6"	150	0.50	40

max. recommended temperature

Stainless Steel	+400 °C
Hastelloy**	+400 °C
Nickel	+400 °C
Inconel**	+600 °C

*Vent area compliant with PED certification, MNFA (ASME Sec. VIII, Div. 1) may vary.

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Temperature range for rupture discs with CE mark may vary.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

[1]If there is a gas cushion upstream of the rupture disc.

UKB-LS

Ready-to-install unit for maximum Leak-tightness

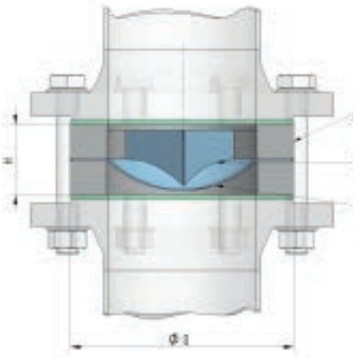
Helium leak-tested

Bespoke design for individual requirements.

Ready-to-install unit, micro-welded.

For applications with minimal to medium burst pressures, a very thin and therefore very sensitive rupture membrane is often essential. UKB-LS is particularly suitable for critical process applications which require a made-to-measure design and leak-tight seal while simultaneously providing vacuum resistance. The standard operating ratio is up to 90 % of the minimum response pressure.

UKB-LS is a ready-to-install unit comprising a reverse acting rupture disc and a holder. It is micro-welded into a customized designed housing. This guarantees you the highest possible leak-tightness even with fugitive gases.



Your advantages

- **Outstanding leak-tight seal:** no emissions or loss of product.
- **Compact, space-saving design.**
- **Easy to install, no special tools required.**
- **Customised connection options possible.**

Technical data

DIN EN 1092-1**, Type 11						ASME B 16.5		
NPS [in]	DN [mm]	Ø D [mm] PN 10	Ø D [mm] PN 16	Ø D [mm] PN 25	Ø D [mm] PN 40	Ø D [mm] 150 # RF	Ø D [mm] 300 # RF	H* [mm]
¾"	20	61	61	61	60	54	63	25
1"	25	71	71	71	71	63	69	25
1½"	40	92	92	92	92	82	92	30
2"	50	105	105	105	105	101	107	30
2½"	65	125	125	125	127	120	127	35
3"	80	142	142	142	142	133	146	40
4"	100	162	162	162	167	171	177	50
6"	150	217	217	217	223	219	247	80
8"	200	272	272	283	290	276	304	110
10"	250	328	329	340	352	336	358	130
12"	300	378	384	-	417	406	419	150
14"	350	444	444	-	474	447	482	170
16"	400	489	495	-	546	511	535	190

*H is the minimal standard dimension. This dimension might be higher if a edgewise threaded connection in the process-averted part of the housing, in case of using flanges with tongues and groves or in case of ledge and recess is requested.
**Replaces DIN 2631 and following.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

You can find detailed information and contact details for enquiries relating to IKB® and UKB-LS at www.rembe.de. Or just give us a call: T +49 2961 7405-0, info@rembe.de.

You can find appropriate rupture disc holders for IKB® and signalling devices for IKB® and UKB-LS from page 28.

FORWARD ACTING RUPTURE DISCS

In forward acting rupture discs, the domed side of the disc faces away from the process. At REMBE® we also use state-of-the-art laser production techniques when manufacturing forward acting rupture discs.

With a wide choice of materials and designs, we can supply the perfect rupture disc for every application – customised for your process.

STAR

For low to high pressures

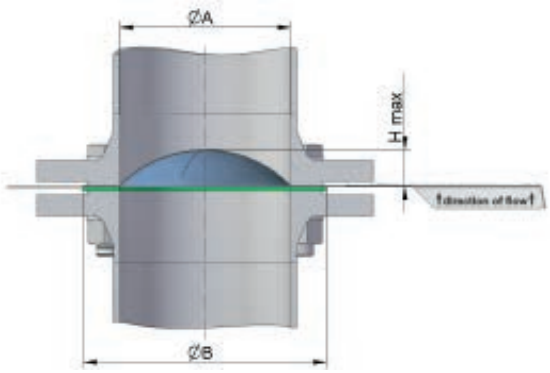
STAR is primarily used in applications with low to high burst pressures, especially in the oil and gas industry, petro-chemicals and chemicals, applications with liquified gases and processes that involve pressure cycling. The standard operating ratio is up to 80 % of the minimum response pressure. For applications with a burst pressure of less than 1 barg, STAR can be installed directly between flanges.

The advanced manufacturing process guarantees minimum fragmentation when opening even at the highest pressures. Its star-shaped opening pattern is flatter than that of other rupture discs so it requires less installation height. The multi-section design and integrated vacuum support guarantee excellent vacuum resistance.

Technical data

NPS [in]	DN [mm]	Ø A [mm]	Ø B [mm]	H max [mm]
1"	25	29	56	12
1½"	40	43	78	15
2"	50	55	89	20
2½"	65	71	115	25
3"	80	83	130	35
4"	100	107	152	35
5"	125	132	180	40
6"	150	160	205	45
8"	200	208	260	50
10"	250	261	315	60
12"	300	310	370	70
14"	350	342	420	80
16"	400	393	470	80
18"	450	465	555	80
20"	500	494	575	90
22"	550	560	660	90
24"	600	596	675	100

Dimensions compliant with DIN EN 1092-1 type 11 (DIN 2631 following). Different sizes, pressure classes, temperatures, materials and fittings available on request.



Your advantages

- **Minimal space required due to low height and star-shaped opening pattern.**
- **Cost-effective** as different materials can be used for the individual elements of the rupture disc.
- **Minimum risk of fragmentation** even at high pressures.
- **Also suitable for isolating safety valves.**

ODV

For low to medium pressures

ODV is primarily used for applications with low to medium pressures, e.g. for gases, liquids and applications with two-phase flows. The disc has a standard operating ratio of max. 80 %. For burst pressures of less than 1 barg, ODV can be installed directly between flanges or angular rings.

ODV has a three-layer design:
The burst element is located on the side facing away from the process to protect it against corrosive media.
The breaking points are cut into the burst element using lasers and define the burst pressure with outstanding precision. The sealing element isolates the burst element from the process. On the process side, the integrated vacuum support ensures the process is safe even when operating with full vacuum.

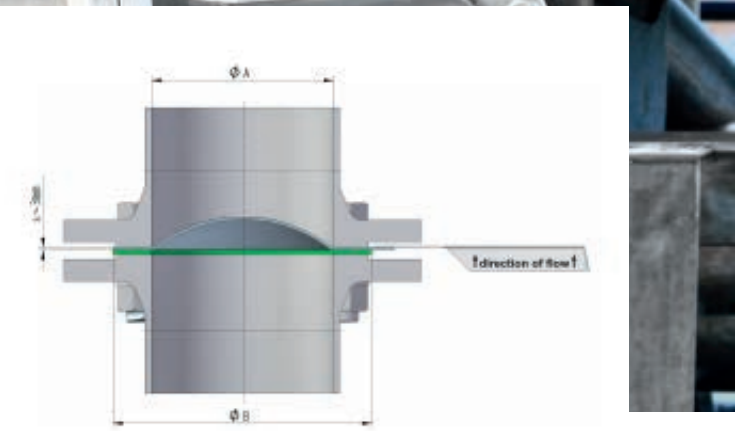
Your advantages

- **Suitable for use even with full vacuum** due to integrated vacuum support.
- Also suitable for use with low burst pressures.

Technical data ODV

Sealing Membrane		FEP	PTFE	Aluminium	Nickel	Monel*	Inconel*	Stainless Steel	Hastelloy*
		max. Temperatur							
NPS [in]	DN [mm]	205 °C	230 °C	120 °C	400 °C	430 °C	600 °C	400 °C	400 °C
		min. burst pressure [barg]							
¾"	20	3.0	1.5	6.0	10	13	20	22	28
1"	25	2.5	1.0	3.5	11	10	17	16	20
1¼"	40	2.0	0.90	2.5	4.5	6.0	10	10	15
2"	50	1.0	0.70	1.5	3.2	4.5	7.5	8.0	10
2½"	65	1.0	0.60	1.3	2.5	3.0	5.0	7.0	6.6
3"	80	0.60	0.40	1.0	2.0	2.5	4.3	6.0	6.0
4"	100	0.50	0.30	0.80	1.6	2.0	3.3	5.0	5.0
6"	150	0.40	0.20	0.50	2.2	2.5	3.1	5.0	5.0
8"	200	0.20	0.10	0.30	1.8	2.0	3.0	4.5	4.5
10"	250	0.20	0.09	0.30	1.5	1.5	2.5	3.5	4.5
12"	300	0.15	0.08	0.20	1.4	1.5	2.0	3.5	4.0
14"	350	0.15	0.08	0.20	1.2	1.5	1.5	3.5	4.0
16"	400	0.10	0.08	0.10	1.0	1.5	1.5	3.0	3.5
18"	450	0.10	0.08	0.10	0.90	1.5	1.5	3.0	3.5
20"	500	0.10	0.06	0.10	0.75	1.5	1.5	2.0	3.0
24"	600	0.10	0.05	0.10	0.75	1.5	1.5	2.0	0.40

*Company Names or trademarks combined with material descriptions are only used for description purposes.
The product promoted is not product of the respective companies and trademarks.
Standard tolerance ±10 % including manufacture tolerance.
Temperature range for rupture discs with CE mark may vary.
Different sizes, pressure classes, temperatures, materials and fittings available on request.



Technical data ODV for installation between flanges

NPS [in]	DN [mm]	Installation between welding-nexk flanges according to DIN 2631 or DIN EN 1092-1* (PN6)	Min. vent area* [cm²]	burst pressure		Standard vacuum resistance [mm WS]	Ø A [mm]	Ø B [mm]	H max. [mm]
				min. [barg]	max. [barg]				
1"	25	✓	3.50	2.0	6.0	absolute	29	56	12
1½"	40	✓	9.50	1.5	6.0	absolute	41	78	15
2"	50	✓	17.00	0.70	6.0	absolute	55	89	20
2½"	65	✓	25.00	0.70	6.0	absolute	71	115	25
3"	80	✓	35.00	0.50	5.0	absolute	83	130	35
4"	100	✓	60.00	0.30	5.0	absolute	107	152	35
5"	125	✓	80.00	0.30	5.0	absolute	132	180	40
6"	150	✓	125	0.20	2.0	absolute	160	205	45
8"	200	✓	245	0.10	2.0	absolute	208	260	50
10"	250	✓	400	0.10	2.0	absolute	261	315	60
12"	300	✓	600	0.10	2.0	absolute	310	370	70
14"	350	✓	750	0.10	2.0	absolute	342	420	80
16"	400	✓	1000	0.10	2.0	absolute	393	470	80
18"	450	only DIN EN 1092-1*	1430	0.05	2.0	absolute	465	528	80
20"	500	✓	1660	0.05	1.0	absolute	494	575	90
22"	550	only ANSI	2150	0.05	1.0	absolute	560	660	90
24"	600	✓	2500	0.05	1.0	absolute	596	675	90
28"	700	✓	3500	0.05	1.0	-5000	697	780	100
30"	750	only ANSI	4200	0.05	1.0	-3000	762	876	100
32"	800	✓	4600	0.05	1.0	-3000	799	885	100
36"	900	✓	5900	0.05	1.0	-1000	900	985	100
40"	1000	✓	7400	0.05	1.0	-1000	1002	1085	100
44"	1100	only ANSI	8950	0.025	0.80	-500	1102	1200	120
48"	1200	✓	10000	0.025	0.80	-500	1204	1300	120
50"	1250	only ANSI	11700	0.025	0.50	-100	1250	1380	120
52"	1300	only ANSI	12500	0.025	0.50	-100	1300	1420	120
56"	1400	✓	15000	0.025	0.50	-100	1404	1500	120

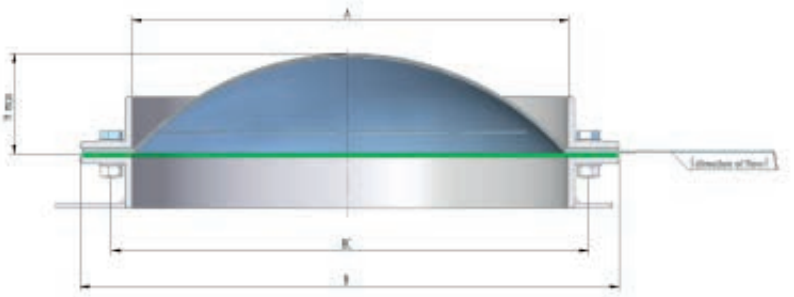
*Replaces DIN 2631 and following.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

Forward acting rupture discs

Technical data ODV for installation between flat steel/angular rings

NPS [in]	DN [mm]	Min. vent area* [cm²]	burst pressure min. [barg]	burst pressure max. [barg]	Standard vacuum resistance* [mm WS]	A [mm]	B [mm]	H max. [mm]	BC bolt circle [mm]	Bore Ø [mm]	Number of bores	Flat steel ring up to 6"/ DN 150 [mm]	Angular ring from 8" / DN 200 [mm]
1"	25	3.5	2.0	5.0	absolute	27	56	12	47	6.5	4	56/27 × 5	-
1½"'	40	9.5	1.5	5.0	absolute	41	78	15	68	6.5	4	78/41 × 5	-
2"	50	17	0.70	1.0	absolute	55	89	20	78	7.5	4	89/55 × 5	-
2½"	65	25	0.70	1.0	absolute	71	115	25	103	7.5	4	115/71 × 5	-
3"	80	35	0.50	1.0	absolute	83	130	35	115	8.5	4	130/83 × 6	-
4"	100	60	0.30	1.0	absolute	107	152	35	137	8.5	6	152/107 × 6	-
5"	125	80	0.30	1.0	absolute	132	180	40	164	8.5	6	180/132 × 6	-
6"	150	125	0.20	1.0	absolute	160	205	45	186	8.5	8	205/160 × 6	-
8"	200	245	0.10	1.0	absolute	208	260	50	243	8.5	8	-	30/30/4
10"	250	400	0.10	1.0	absolute	261	315	60	296	8.5	8	-	30/30/4
12"	300	600	0.10	1.0	absolute	310	370	70	355	11	12	-	40/40/5
14"	350	750	0.10	1.0	absolute	342	420	80	387	11	12	-	40/40/5
16"	400	1000	0.10	1.0	absolute	393	470	80	443	13	16	-	45/45/5
18"	450	1430	0.05	1.0	absolute	465	555	80	515	13	16	-	45/45/5
20"	500	1660	0.05	1.0	absolute	494	575	90	544	13	20	-	45/45/5
22"	550	2150	0.05	1.0	absolute	560	660	90	615	13	20	-	45/45/5
24"	600	2500	0.05	1.0	absolute	596	675	90	646	13	20	-	45/45/5
28"	700	3500	0.05	1.0	-5000	697	780	100	752	13	28	-	50/50/5
30"	750	4200	0.05	1.0	-3000	762	876	100	817	13	28	-	50/50/5
32"	800	4600	0.05	1.0	-3000	799	885	100	854	13	28	-	50/50/5
36"	900	5900	0.05	1.0	-1000	900	985	100	955	13	32	-	50/50/5
40"	1000	7400	0.05	1.0	-1000	1002	1085	100	1057	13	36	-	50/50/5
44"	1100	8950	0.025	0.80	-500	1102	1200	110	1160	13	44	-	50/50/5
48"	1200	10000	0.025	0.80	-500	1204	1300	120	1259	13	40	-	50/50/5
50"	1250	11700	0.025	0.50	-100	1250	1380	120	1320	13	44	-	50/50/5
52"	1300	22500	0.025	0.50	-100	1300	1420	120	1370	13	48	-	50/50/5
56"	1400	25000	0.025	0.50	-100	1404	1500	120	1459	13	44	-	50/50/5

Different sizes, pressure classes, temperatures, materials and fittings available on request.



You can find detailed information and contact details for enquiries relating to ODV at www.rembe.de.
Or just give us a call: T +49 2961 7405-0, info@rembe.de.

You can find appropriate rupture disc holders for IKB® and signalling devices for IKB® and UKB-LS from page 28.

BI-DIRECTIONAL RUPTURE DISCS

The 2-in-1 rupture disc

The bi-directional acting rupture disc opens in one direction for a defined overpressure and in the other direction for vacuum. It is primarily used in storage tanks, processes involving gases or liquids and two-phase flow applications. The rupture disc permits a standard operating ratio of 80 % in the overpressure direction and 70 % in the vacuum direction.

By combining the principles of the KUB® reverse acting rupture disc with the buckling pin and the three-section design of the ODV forward acting rupture disc, we can offer you a rupture disc that responds at two different but precisely defined burst pressures.

Your advantages

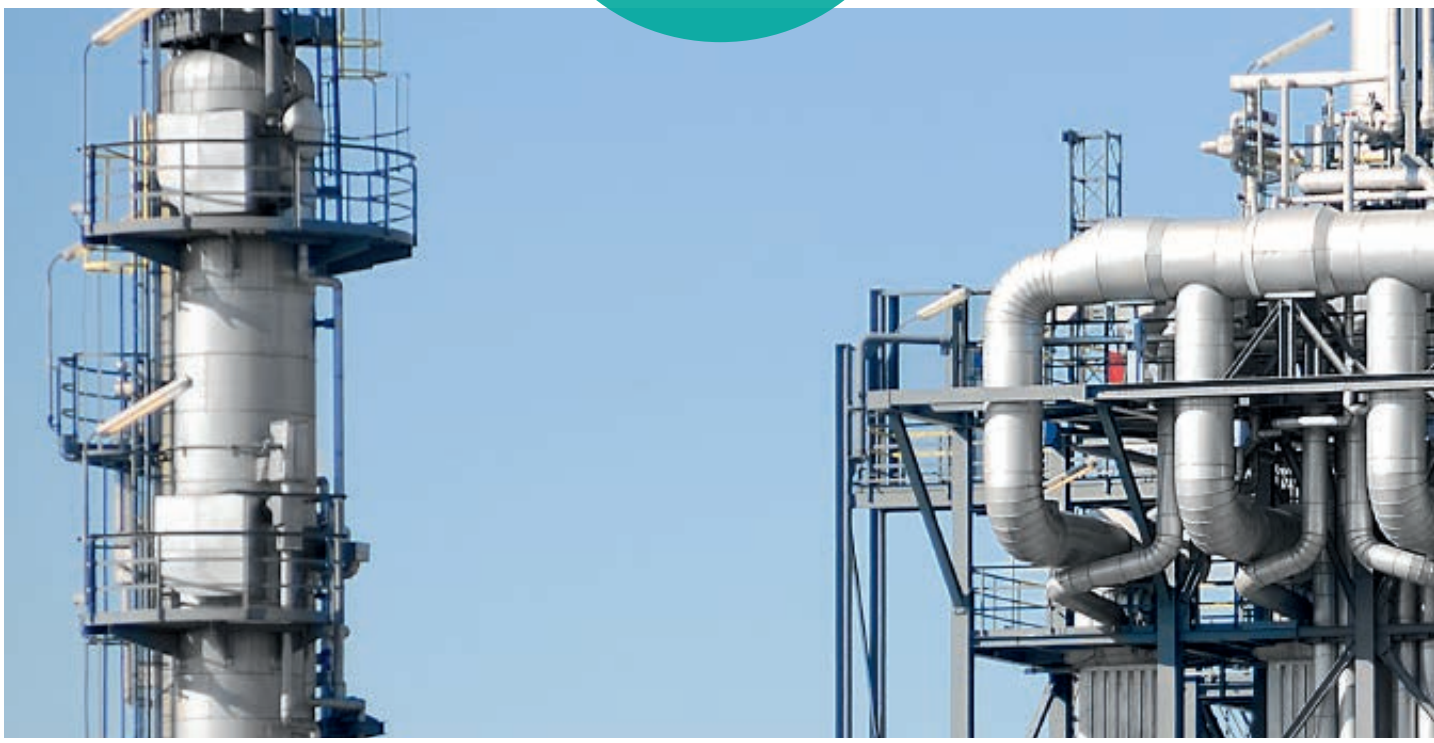
- **Performs the work of two rupture discs.**
- **Suitable for a wide range of applications.** No additional holder is required: mounted directly between flanges or angular rings.

Technical data								
NPS [in]	2"	2½"	3"	4"	6"	8"	10"	12"
DN [mm]	50	65	80	100	150	200	250	300

Min. burst pressure at 22 °C								
Pressure [barg]	0.50	0.50	0.50	0.30	0.15	0.10	0.10	0.10
Vacuum [barg]	-0.40	-0.30	-0.15	-0.025	-0.02	-0.02	-0.02	-0.015

Min. vent area								
In pressure direction [cm²]	17	25	35	60	125	245	400	600
In vacuum direction [cm²]	4.5	6.0	11	20	55	60	90	110

Standard material combination: stainless steel/PTFE/stainless steel up to 239 °C maximum.
Different sizes, pressure classes, temperatures, materials and fittings available on request.



SINGLE LAYER RUPTURE DISCS

The rupture disc that started it all.

The Grandfather of all rupture discs

The rupture disc that started it all many decades ago. Even now, this forward acting rupture disc is still a good choice for simple applications with medium to high pressures, such as in pumps, in the petrochemical and chemicalindustries or in hydraulics. The standard operating ratio is up to 70 % of the minimum response pressure.

The burst pressure is determined by the tensile strength and thickness of the material. Also available with integrated vacuum support for total vacuum resistance.

Your advantages

- **Easy to use.**
- **Wide range of materials available.**
- **Optimum price-performance ratio.**

Technical data

burst element		Aluminium	Nickel	Monel*	Inconel*	Stainless Steel	Hastelloy*
max. recommended temperature*		120 °C	400 °C	430 °C	600 °C	320 °C	400 °C
NPS [in]	DN [mm]	min. burst pressure [barg]					
¼"	6.35	15	27.5	50	60	40	70
½"	15	6.0	11	20	21	30	43
¾"	20	2.6	9.0	10	15	16	28
1"	25	2.0	8.0	7.0	11	13	20
1½"	40	1.5	4.5	6.0	8.0	10	15
2"	50	1.0	3.2	4.5	7.5	6.0	10
2½"	65	0.90	2.5	3.0	5.0	6.0	6.6
3"	80	0.70	2.0	2.5	4.3	5.5	6.0
4"	100	0.30	1.6	2.0	3.3	5.0	5.0
6"	150	0.20	2.2	2.5	3.0	3.5	5.0
8"	200	0.10	1.5	2.0	2.5	3.0	4.5
10"	250	0.10	1.4	2.0	2.5	3.0	4.5
12"	300	0.10	1.4	2.0	2.0	2.0	4.0
14"	350	0.10	1.2	2.0	1.5	2.0	4.0
16"	400	0.10	1.0	2.0	1.5	2.0	3.5
18"	450	0.10	0.90	2.0	1.5	2.0	3.5
20"	500	0.10	0.75	1.5	1.5	2.0	3.0
24"	600	0.10	3.0	4.0	3.5	2.0	0.40

*Company names or trademarks combined with material descriptions are only used for description purposes. The product promoted is not product of the respective companies and trademarks.
Standard tolerance ±10 % including manufacture tolerance.
Temperature range for rupture discs with CE mark may vary.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

You can find detailed information and contact details for enquiries relating to bi-directional rupture discs and single layer rupture discs at www.rembe.de. Or just give us a call: T +49 2961 7405-0, info@rembe.de.

You can find appropriate rupture disc holders signalling devices from page 28.

FLAT RUPTURE DISCS

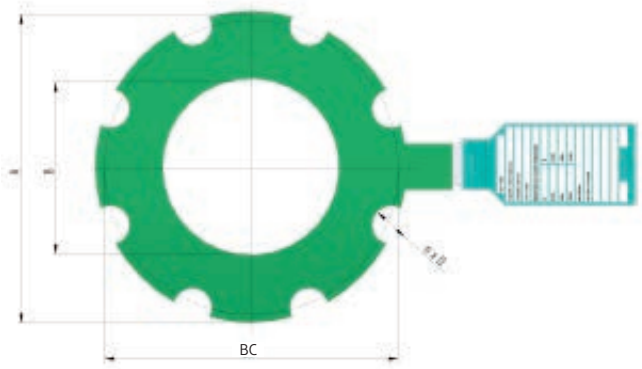
For protection against overpressure and vacuum in gases and liquids

Flat rupture discs from REMBE® offer you fragmentation-free opening across the full width of the vent.

Can be produced in virtually any size from DN 20 to DN 1400, for very low pressures from 15 mbarg and with low burst tolerances.

FLAT RUPTURE DISCS

For protection against overpressure and vacuum in storage vessels and low pressure systems. Also suitable as a secondary safety device alongside breather valves. This rupture disc is designed to work at standard operating ratios of up to 50 % of the min. response pressure. It is installed directly between flanges and is available for all flange types. No holder required for installation.



Your advantages

- **Requires less space than safety valves** due to the smaller diameter of the rupture disc.
- **Available for all flanges.**
- **No holder required for installation.**

Technical data

NPS [in]	DN [mm]	pressure class PN	pressure class ANSI	B [mm]	A [mm]	BC [mm]	n [mm]	D [mm]
¾"	20	16–40	300–1500	22	73	75	4.0	14
1"	25	6–40	150–900	29	76	80	4.0	16
1½"	40	6–40	150–900	43	95	100	4.0	18
2"	50	16–40	150–300	55	107	120	4.0	20
3"	80	6–64	150–900	83	165	156	8.0	24
4"	100	16–64	150–600	107	190	186	8.0	24
6"	150	16–40	150–300	160	247	244	8.0	26
8"	200	6–10	150–300	208	276	280	8.0	18
10"	250	6–10	150–300	261	315	-	-	-
12"	300	6–10	150–300	310	370	-	-	-
14"	350	6–10	150–300	342	420	-	-	-
16"	400	6–10	150–300	393	473	-	-	-
18"	450	6–10	150–300	465	528	-	-	-
20"	500	6–10	150–300	494	575	-	-	-
24"	600	6–10	150–300	596	675	-	-	-
28"	700	6–10	150–300	697	780	-	-	-
30"	750	6–10	150–300	762	876	-	-	-
32"	800	6–10	150–300	799	885	-	-	-
36"	900	6–10	150–300	900	985	-	-	-
40"	1000	6–10	150–300	1002	1085	-	-	-

Different sizes, pressure classes, temperatures, materials and fittings available on request.

You can find detailed information and contact details for enquiries relating to flat rupture discs at www.rembe.de. Or just give us a call: T +49 2961 7405-0, info@rembe.de.

You can find appropriate rupture disc holders and signalling devices from page 28.

BESPOKE RUPTURE DISCS FOR SPECIAL APPLICATIONS

Specially manufactured for unusual challenges

Bespoke rupture discs are used in applications in which individual parameters such as size, space restrictions, leak-tightness or unusual connections require special consideration.

Our specialists manufacture your rupture discs exactly to your specifications – for even greater safety in highly complex systems, special installations or specific OEM applications.

We use a variety of materials to adapt our solution to your burst pressure, temperature and corrosion resistance requirements, e.g. stainless steel, nickel, Monel, Inconel, Hastelloy, tantalum, titanium, zirconium and precious metals or high performance plastics.

PLUG TYPE RUPTURE DISCS

The individual alternative

Plug type rupture discs are used for to provide protection against overpressure and vacuum in hydraulic, pneumatic and low temperature or refrigeration systems, nuclear, offshore, pharmaceutical and chemical plants and even in space applications.

For medium to high pressures, depending on the design and application, the burst membrane can be welded without additional materials or fixed in position using a specialmanufacturing welding application. For applications at low pressures and low leakage rates, the membrane is only laser-welded to protect the material.

Your advantages

- **Everything is possible:** completely customised design and layout.
- **Easy to install** due to its compact design.
- **Offers a safe solution in difficult installation situations**

Made in Germany

EXTRUDER RUPTURE DISCS

For the plastics and food processing industries

Extruder rupture discs from REMBE® are used in a variety of extruders as well as in plastics processing machines. Pressures of several 1.000 barg and temperatures of up to 600 °C are not uncommon in these applications. The special gas-tight soldered or welded rupture disc membrane is installed directly at the extruder screw. This eliminates the risk of dead spaces where residues can accumulate.

All standard connections/bores for pressure transducers or probes on plastic extruders can be protected by REMBE® rupture discs. This type of rupture disc can be fitted with an integrated signalling device as an optional feature.

Your advantages

- **Quick and simple to replace** due to compact unit size.
- **Excellent process safety** for versions with signalling devices.

Also available with signalling device

Made in Germany

You can find detailed information and contact details for enquiries relating to bespoke rupture discs at www.rembe.de. Or just give us a call: T +49 2961 7405-0, info@rembe.de.

You can find appropriate rupture disc holders and signalling devices from page 28.

RUPTURE DISC HOLDERS, SIGNALLING DEVICES

REMBE® supplies all the products you need

There is more to process safety than rupture discs. Safety always requires a complete solution. We offer you everything you need to make your production process even safer and more effective. This includes appropriate rupture disc holders and signalling devices to ensure your rupture discs are safely installed and monitored. Our specialists will be happy to advise you in detail about the most effective solution for your needs.

RUPTURE DISC HOLDERS

For the perfect installation

REMBE® guarantees your rupture disc is easily installed and functions with maximum efficiency. The various REMBE® rupture disc holders are specially designed to make it impossible to install the corresponding rupture discs incorrectly:

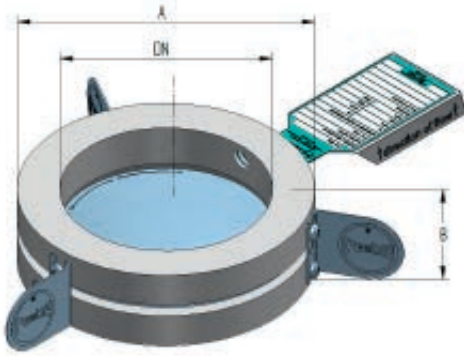
- Rupture disc holders for KUB® and IKB® have a centring pin, which prevents the rupture disc being installed in the wrong position.
- In all other rupture disc holders, the differing internal diameters of the outlet and inlet components ensure that the rupture discs are inserted properly.

Your advantages

- **Easy to install** due to torque-independent design.
- Full metal seal for **excellent leak tightness.**
- **Fits all standard flange sizes,** customised designs available.
- **Available in a wide range of materials.**

Rupture disc holder IG

The two part IG rupture disc holder for reverse acting rupture discs has an integrated centring pin to guarantee the rupture disc is inserted correctly. The holder's metallic clamping means that no sealing is required. The rupture disc holder can be re-used any number of times.



IG for forward acting rupture discs

Technical data rupture disc holder IG

DIN EN 1092-1*					ASME B 16.5				
NPS [in]	DN [mm]	pressure class PN	A [mm]	B [mm]	NPS [in]	DN [mm]	pressure class ANSI	A [mm]	B [mm]
½"	15	10 – 40	51	42	½"	15	150	44	42
		63(64) – 160	61	42			300/600	50	42
¾"	20	10 – 40	61	42			900/1500	60	42
1"	25	10 – 40	71	42	¾"	20	150	53	42
		63(64) – 160	82	42			300/600	63	42
1¼"	32	10 – 40	82	42			900/1500	66	42
1½"	40	10 – 40	92	42	1"	25	150	63	42
		63(64) – 100	103	42			300/600	69	42
2"	50	10 – 40	105	42			900/1500	76	42
		63(64)	113	42	1¼"	32	150	73	42
2½"	65	10 – 25	125	42			300/600	79	42
		40	127	42			1500	85	42
		63(64)	138	42	1½"	40	150	82	42
		100	144	42			300/600	92	42
3"	80	10 – 40	142	42			900/1500	95	42
		63(64)	148	54	2"	50	150	101	42
		100	154	54			300/600	107	42
4"	100	10/16	162	45			900/1500	139	41
		25/40	167	45	2½"	65	150	120	41
		63(64)	174	45			300/600	127	41
5"	125	10/16	192	55			900/1500	162	41
		25/40	194	55	3"	80	150	133	42
		63(64)	210	55			300/600	146	42
6"	150	10/16	217	55			900	165	42
		25/40	223	55			1500	171	42
		63(64)	247	88	4"	100	150	171	45
8"	200	10/16	272	55			300	177	45
		25.00	283	55			600	190	45
		40.00	290	88			900/1500	203	45
10"	250	10.00	325	62	5"	125	150	193	55
		16.00	328	62			300	209	55
		25.00	340	62			600	238	55
		40.00	352	62			900	244	55
12"	300	10.00	375	63	6"	150	150	219	55
		16.00	383	63			300	247	55
		25.00	400	63			600	263	55
		40.00	417	73			900	285	88

Continued on page 31

*Replaces DIN 2632 and following.

Technical data rupture disc holder IG

DIN EN 1092-1*					ASME B 16.5				
NPS [in]	DN [mm]	pressure class PN	A [mm]	B [mm]	NPS [in]	DN [mm]	pressure class ANSI	A [mm]	B [mm]
14"	350	10	435	75	8"	200	150	276	55
		16	443	75			300	304	55
		25	457	75			600	317	88
		40	471	87	10"	250	150	336	62
16"	400	10	485	78			300	358	62
		16	495	78	12"	300	150	406	63
		25	514	78			300	419	63
		40	543	95	14"	350	150	447	75
20"	500	10	592	87			300	482	75
		16	617	87	16"	400	150	511	78
		25	624	87			300	536	78
		40	628	105	20"	500	150	603	87
24"	600	6	679	96			300	647	87
		10	695	96	24"	600	150	714	96
		16	734	96			300	771	96
		25	731	96					

*Replaces DIN 2632 and following.

Technical data rupture disc holder IG-HL

ASME B 16.5					DIN EN 1092-1*			
NPS [in]	pressure class ANSI	D [mm]	H [mm]	H** [mm]	DN [mm]	pressure class PN	DN [mm]	H [mm]
½"	150	44	44	58	15	10 – 40	51	44
	300/600	50				64 (63) – 160	61	
	900/1500	60				250	72	
	2500	66			20	10 – 40	61	46
¾"	150	53	46	60		64 (63)/100	72	
	300/600	63			25	10 – 40	71	46
	900/1500	66				64 (63) – 160	82	
	2500	73				250	83	
1"	300/600	69	46	60	40	10 – 40	92	53
	900/1500	76				64 (63) – 160	103	
	2500	82				250	109	
1½"	300/600	92	53	70	50	10 – 40	107	53
	900	95				64 (63)	113	
	1500	95				100/160	119	
	2500	114				250	124	
2"	300/600	107	53	70	65	10 – 40	127	57
	900/1500	139				100/160	144	
	2500	143				250	154	

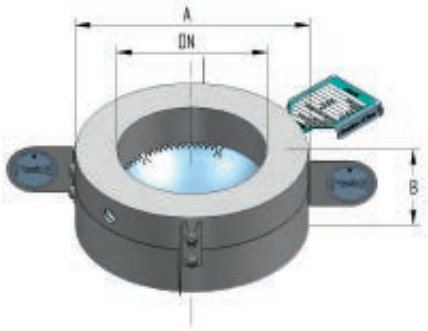
Continued on page 32

*Replaces DIN 2632 and following.
**Ring Type Joint Face.

Technical data rupture disc holder IG-HL

ASME B 16.5					DIN EN 1092-1*			
NPS [in]	pressure class ANSI	D [mm]	H [mm]	H** [mm]	DN [mm]	pressure class PN	DN [mm]	H [mm]
2½"	300/600	127	57	76	80	10 – 40	142	57
	900/1500	162				64 (63)	148	
	2500	165				100/160	154	
3"	300/600	146	57	76		250	170	
	900	165			100	10/16	162	60
	1500	171				25/40	167	
	2500	193				100/160	180	
4"	300	177	60	86		250	202	
	600	190			125	25/40	194	63
	900	203				64 (63)	210	
	1500	206				100/160	217	
	2500	232				250	242	
5"	300	212	63	89	150	10/16	217	76
	600	238				25/40	223	
	900	244				100/160	257	
	1500	251			200	10/16	272	85
	2500	276				25	283	
6"	150	219	76	92		40	290	
	300	247				100/160	324	
	600	263			250	10/16	328	85
8"	300	304	85	111		25	340	
	600	317				40	352	
10"	150	336	85	111		64 (63)	364	
	300	358			300	10	378	92
12"	150	406	92	118		16	384	
	300	419				25	400	
14"	150	447	100	126		40	417	
	300	482			350	10	438	100
16"	150	511	105	131		16	443	
	300	536				25	457	
18"	150	546	110	136	400	10	489	105
	300	593				16	496	
20"	150	603	116	135		25	514	
	300	650			500	10	594	116
24"	150	714	126	148		16	617	
	300	771			600	10	695	126
						16	734	

*Replaces DIN 2632 and following.
**Ring Type Joint Face.



IG for reverse acting rupture discs

Technical data rupture disc holder IG-KUB (-S), DIN EN 1092-1*

NPS [in]	DN [mm]	pressure class PN	A [mm]	B [mm]	Number of studs	Recommended stud size
¾"	20	10/16/25/40	61	41	4	M12
1"	25	10/16/25/40	71	46	4	M12
		64(63)/100	82	46	4	M16
1¼"	32	10/16/25/40	82	46	4	M16
1½"	40	10/16/25/40	92	46	4	M16
2"	50	10/16	105	57	4	M16
		25/40	105	57	4	M16
2½"	65	10/16	127	57	8(4)	M16
		25/40	127	57	8	M16
3"	80	10/16	142	60	8	M16
		25/40	142	60	8	M16
4"	100	10/16	162	68	8	M16
		25/40	167	68	8	M20
5"	125	10/16	192	68	8	M16
		25/40	194	68	8	M24
6"	150	10/16	217	80	8	M20
		25/40	223	80	8	M24
8"	200	10	272	84	8	M20
		16	272	84	12	M20
		25	283	84	12	M24
		40	290	84	12	M27
10"	250	10	328	91	12	M20
		16	328	91	12	M24
		25	340	91	12	M27
		40	352	91	12	M30
12"	300	10	378	92	12	M20
		16	378	92	12	M24
		25	400	92	16	M27
		40	417	92	16	M30
14"	350	10	438	104	16	M20
		16	443	104	16	M24
16"	400	10	485	109	16	M24
		16	496	109	16	M27
20"	500	10	594	119	20	M24
		16	617	119	20	M30
24"	600	6	679	133	20	M24
		10	692	133	20	M27
		16	734	133	20	M33
28"	700	6	784	150	24	M24
		10	810	150	24	M27
		16	804	150	24	M33
32"	800	6	890	175	24	M27
		10	917	175	24	M30
		16	911	175	24	M36

*Replaces DIN 2631 and following.

ASME B 16.5 (¾" – 24") and ASME B 16.47 series A (26" – 32")

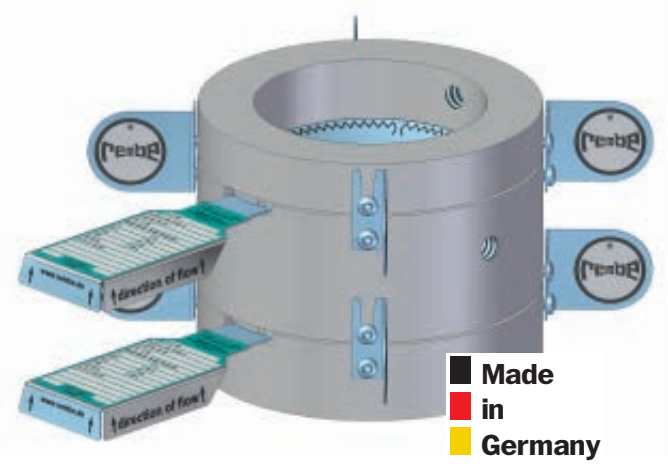
NPS [in]	DN [mm]	pressure class ANSI	A [mm]	B [mm]	number of studs	recommended studs sides
¾"	20	300	63.00	41.00	4	⅝"
1"	25	150	63.00	46.00	4	½"
		300/600	69.00	46.00	4	⅝"
		900/1500	76.00	46.00	4	⅞"
1¼"	32	150	73.00	46.00	4	½"
		300/600	79.00	46.00	4	⅝"
		900/1500	85.00	46.00	4	⅞"
1½"	40	150	82.00	46.00	4	½"
		300/600	92.00	46.00	4	¾"
		900/1500	95.00	46.00	4	1"
2"	50	150	101	53.00	4	⅝"
		300/600	107	53.00	8	⅝"
		900/1500	139	53.00	8	⅞"
2½"	65	150	120	57.00	4	⅝"
		300/600	127	57.00	8	¾"
		900/1500	162	57.00	8	1"
3"	80	150	133	60.00	8	⅝"
		300/600	146	60.00	8	¾"
		900	165	60.00	8	⅞"
		1500	171	60.00	8	1"
4"	100	150	171	68.00	8	⅝"
		300	177	68.00	8	¾"
		600	190	68.00	8	⅞"
		900/1500	203	68.00	8	1¼"
5"	125	150	193	68.00	8	¾"
		300	212	68.00	8	¾"
		600	238	68.00	8	1"
6"	150	150	219	80.00	8	¾"
		300	247	80.00	12	¾"
		600	263	80.00	12	1"
8"	200	150	276	84.00	8	¾"
		300	304	84.00	12	⅞"
		600	317	84.00	12	1⅛"
10"	250	150	336	91.00	12	⅞"
		300	358	91.00	16	1"
12"	300	150	406	92.00	12	⅞"
		300	419	92.00	16	1⅛"
14"	350	150	447	104	12	1"
		300	482	104	20	1⅛"
16"	400	150	511	109	16	1"
		300	536	109	20	1¼"
18"	450	150	546	119	16	1⅛"
		300	593	119	24	1¼"
20"	500	150	603	119	20	1⅛"
		300	650	119	24	1¼"

Continued on page 35

ASME B 16.5 (¾" – 24") and ASME B 16.47 series A (26" – 32")

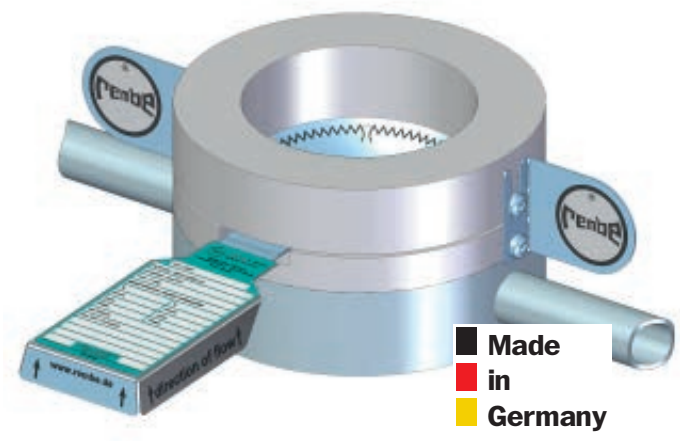
NPS [in]	DN [mm]	pressure class ANSI	A [mm]	B [mm]	number of studs	recommended studs sides
24"	600	150	714	133	20	1¼"
		300	771	133	24	1½"
26"	650	150	771	150	24	1¼"
		300	831	150	28	1¾"
28"	700	150	828	150	28	1¼"
		300	895	150	28	1¼"
30"	750	150	879	150	28	1¾"
		300	949	150	28	1⅝"
32"	800	150	936	175	28	1½"
		300	1003	175	28	1¾"

You can find detailed information and contact details for enquiries relating to rupture disc holders at www.rembe.de.
Or just give us a call: T +49 2961 7405-0, info@rembe.de.



Double disc assembly

Production processes that use toxic or corrsosive media or have a variable or high back pressures are often protected by two rupture discs installed in series. These are installed in a double disc holder. Depending on the application, the two rupture discs can be adjusted to respond at identical or different pressures. The space between the two discs is continuously monitored to ensure that no back pressure builds up and any leakages due to corrosion of the primary rupture disc are identified immediately. In this event the use of two rupture discs in combination allows the process to continue safely after one disc has been destroyed as the process is still secured by the second disc.

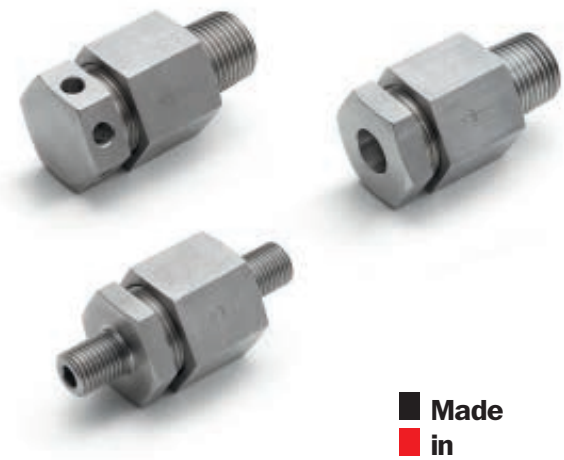


Heated/cooled rupture disc holders

Rupture disc holders with integrated heating channels are specified for applications with polymerising media among others. This minimises the risks of product accumulation and adhesion. The holder is heated with warm liquids or gases. Alternatively, the same method can be used with refrigerants to cool the rupture disc holder.

U-Type

The rupture disc holder with locking nut is adapted to the existing pipe system using a space-saving solution.



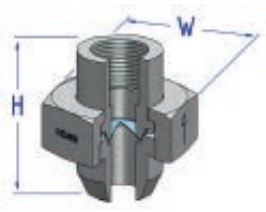
AG/AM/AS

This type of rupture disc is used to protect small sub-assemblies, e.g. autoclaves, small pressure vessels or wind turbines. Available in nominal size DN 6.35 to DN 25 (¼" to 1").

Technical data U-Type

NPS [in]	DN [mm]	max. burst pressure [barg] bei 40 °C	Wrench Size [mm]	H (Installation Hight) [mm]					
				GUF	GUS	GUG	SUF	SUS	SUG
½"	15	200	46	43	57	60	43	57	60
½"	15	400	65	54	67	67	54	67	67
¾"	20	200	65	48	64	70	51	67	73
¾"	20	400	70	48	64	70	51	67	73
1"	25	200	70	54	78	79	54	78	79
1"	25	400	75	57	78	79	64	84	86
1½"	40	200	90	59	79	83	64	86	89
2"	50	40.00	120	68	87	87	73	92	92

Different sizes, pressure classes, temperatures, materials and fittings available on request.



Technical data AG/AM/AS DN 15 for operation pressure up to 200 barg

Typ	Fittings		Wrench Size [mm]		Length of unit
	Inlet	Outlet	Inlet	Outlet	[mm]
½–200 AG	¼" or ½"	¼" or ½"	30	32	~80
½–200 AM	¼" or ½"	free	30	32	~50
½–200 AS	¼" or ½"	muffed	30	32	~65

Different sizes, pressure classes, temperatures, materials and fittings available on request.

AM

Technical data AG/AM/AS DN 15 for operation pressure up to 600 barg

Typ	Fittings		Wrench Size [mm]		Length of unit
	Inlet	Outlet	Inlet	Outlet	[mm]
½–600 AG	¼" or ½"	¼" or ½"	30	32	~75
½–600 AM	¼" or ½"	mittig	30	32	~55
½–600 AS	¼" or ½"	muffed	30	32	~60

Different sizes, pressure classes, temperatures, materials and fittings available on request.

AG

Technical data AG/AM/AS DN 20 for operation pressure up to 200 barg

Typ	Fittings		Wrench Size [mm]		Length of unit
	Inlet	Outlet	Inlet	Outlet	[mm]
¾–200 AG	¼" or ¾"	¼" or ¾"	46	41	~125
¾–200 AM	¼" or ¾"	free	46	41	~80
¾–200 AS	¼" or ¾"	muffed	46	41	~85

Different sizes, pressure classes, temperatures, materials and fittings available on request.

Technical data AG/AM/AS DN 25 for operation pressure up to 100 barg

Typ	Fittings		Wrench Size [mm]		Length of unit
	Inlet	Outlet	Inlet	Outlet	[mm]
1–100 AG	¼" or 1"	¼" or 1"	55	55	~125
1–100 AM	¼" or 1"	free	55	55	~120
1–100 AS	¼" or 1"	muffed	55	55	~95

Different sizes, pressure classes, temperatures, materials and fittings available on request.

AS

SIGNALLING DEVICES

For continuous monitoring of your rupture disc

Automated processes use intelligent signalling systems to keep you continuously informed about the status of your entire plant and any faults that may arise. You can even install signalling devices for rupture discs that have already been installed.

Also for our signalling devices:

Made in Germany

SK

This signalling unit uses the closed-circuit current principle. A signalling cable is integrated into the rupture disc during the manufacturing process to create a highly reliable unit. When the rupture disc opens, the signalling cable circuit is broken and a corresponding signal sent to the process control system.

SR: As an installation aid, the SK signalling device can be supplemented with an additional spacer ring and cable gland.

SNR

SNR monitors rupture discs in storage tanks and applications, which have to be protected simultaneously against overpressure and vacuum using bi-directional rupture discs. This solution uses a proximity switch which offers inductive, intrinsically safe monitoring in line with NAMUR (DIN EN 60947-5-6) for compliance with the highest safety standards.

BIRD

The BIRD signalling device contains a ceramic barg with integrated electrical conductors which are broken when the rupture disc opens. The standard version of BIRD is temperature-resistant up to 150 °C, the high temperature version is capable of operating at temperatures of up to 400 °C.

SLL

The SLL sensor transmits infra-red beams using optical fibres. These hit the reflector on a rupture disc and are registered by the SLL receiver. Both the transmitter and receiver are integrated in the SLL sensor head. When the rupture disc opens, the reflection is broken and a signal is transmitted from the SLL receiver to the connected process control system.

NIMU

NIMU (Non-Invasive Monitoring Unit) is a reusable monitoring system, which informs the operator as soon as the rupture disc responds to an overpressure or vacuum situation. The unit is installed in a blind tapping in the outlet section of the rupture disc holder. This completely isolates NIMU from the process and prevents potential leakages.

After a rupture disc has opened, only the rupture disc itself must be replaced. This reduces production downtime and associated costs to a minimum. NIMU is based on tried and tested, intrinsically safe, closed circuit technology and is therefore easy to integrate into process control systems.

SB/SB-S

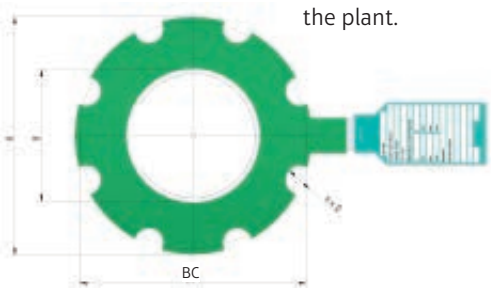
Like the SK signalling device, this signalling system uses the principle of closed circuit technology. The signalling membrane is mounted directly between the flanges on the venting side of the rupture disc. When the rupture disc breaks, the pressure of the discharging medium destroys the SB-S membrane and the circuit is broken. This triggers a signal. Also available without a relief bore for monitoring leakages.

FOS

The fibre optic FOS rupture membrane is used to monitor leakages and the response of rupture discs under highly corrosive conditions and in hazardous areas where electrical connections are not possible.

The signalling element carries no current and consists of a glass fibre with a thickness of < 250 µm. When the rupture disc opens, the optical fibre circuit tears and the circuit is broken.

The downstream evaluation unit transmits a signal, which can be used to trigger visual or acoustic alarms and to shut down the plant.



Technical data SB/SB-S and FOS

NPS [in]	DN [mm]	pressure class		A [mm]	B [mm]	BC [mm]	n [mm]	D [mm]	SB/SB-S: signalling and response pressures at 22 °C
		PN	ANSI						
¾"	20	6–40	150–900	73	22	75	4.0	14	3.2
1"	25	6–40	150–900	76	29	80	4.0	16	2.3
1½"	40	6–40	150–900	95	45	100	4.0	18	1.5
2"	50	6–40	150–900	107	58	120	4.0	20	1.1
3"	80	6–40	150–900	165	84	156	8.0	24	0.80
4"	100	6–40	150–900	190	108	186	8.0	24	0.60
6"	150	6–40	150–900	247	160	244	8.0	26	0.40
8"	200	6–40	150–900	276	208	280	8.0	18	0.30
10"	250	6–40	150–900	-	-	-	-	-	0.20
12"	300	6–40	150–900	-	-	-	-	-	0.20
14"	350	6–40	150–900	-	-	-	-	-	0.20
18"	450	6–40	150–900	-	-	-	-	-	0.10
20"	500	6–40	150–900	-	-	-	-	-	0.10
24"	600	6–40	150–900	-	-	-	-	-	0.10

Different sizes, pressure classes, temperatures, materials and fittings available on request.

You can find detailed information and contact details for enquiries relating to signalling devices at www.rembe.de.
Or just give us a call: T +49 2961 7405-0, info@rembe.de.

ELEVENT®

The breather valve from REMBE®

The ELEVENT® pressure and vacuum relief valve provides optimum protection against overpressure and vacuum for vessels and tanks with low design pressures. It assures a constant and controlled level of pressure in the tank. ELEVENT® not only prevents fugitive emissions of gas, or other pollutants, but also prevents the development of explosive mixtures of substances and eliminates the potential danger of air entering the system. The standard operating ratio is up to 95 % of the minimum response pressure.

ELEVENT® is used in the oil and gas industries, food processing, the chemical and pharmaceutical sectors and power plant technology.

The optimised "air cushion" sealing principle provides a smooth valve stroke and an extremely reliable leak-tight seal.
This prevents abrasion and valve chatter. The metal housing is made from deep-drawn stainless steel.

Your advantages

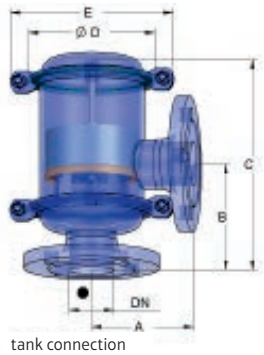
- **Overpressure and vacuum protection** with compact dimensions for extremely low pressure ranges from ±2 mbarg.
- **Reliable leak-tight seal.**
- **Pressure setting can be subsequently changed.**
- **Suitable for applications with corrosive atmospheres** due to corrosion-resistant E-CTFE and PFA coating.
- **Quick and easy to install and service.**

Breather valve

Technical data ELEVENT® for applications with pressure

Type	NPS [in]	DN [mm]	pressure [mbarg]	A [mm]	B [mm]	C [mm]	Ø D [mm]	E [mm]
ELV E–1/1	1"	25	2–100	100	100	195	105	150
ELV E–2/2	2"	50	2–50 51–100 101–200	125	130	223 263 348	155	200
ELV E–3/3	3"	80	2–200	155	155	375	208	263
ELV E–4/4	4"	100	2–200	175	175	395	208	263
ELV E–6/6	6"	150	2–200	255	255	510	325	385
ELV E–8/8	8"	200	2–200	265	325	570	325	385

Dimensions refer to flanges compliant with DIN EN 1092-1 type11, series B, PN 16.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

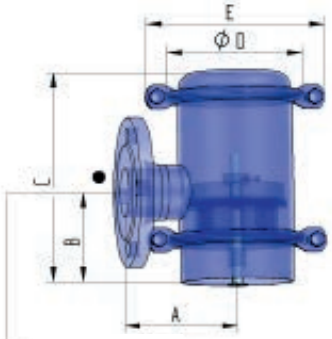


tank connection

Technical data ELEVENT® for applications with vacuum

Type	NPS [in]	DN [mm]	vacuum [mbarg]	A [mm]	B [mm]	C [mm]	Ø D [mm]	E [mm]
ELV U–1	1"	25	2–100	100	65	160	105	150
ELV U–2	2"	50	2–50 51–100 101–200	125	100	195 235 305	155	200
ELV U–3	3"	80	2–200	155	150	310	208	263
ELV U–4	4"	100	2–200	175	150	310	208	263
ELV U–6	6"	150	2–200	255	225	402	325	385
ELV U–8	8"	200	2–200	265	250	472	325	385

Dimensions refer to flanges compliant with DIN EN 1092-1 type11, series B, PN 16.
[1]2"/DN 50: vacuum adjustment 31– 50 mbarg: F*=F+40, C*=C+40.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

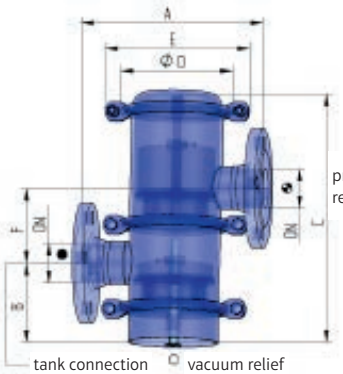


tank connection

Technical data ELEVENT® for applications with pressure and vacuum

Type	NPS [in]	DN [mm]	pressur	vacuum [mbarg]	A [mm]	B [mm]	C [mm]	Ø D [mm]	E [mm]
ELV KL–1/1	1"	25	2–100	2–50	200	65	270	105	95.00
ELV KL–2/2	2"	50	2–50 51–100 101–200	2–30[1]	250	100	308 348 418	155	115
ELV KL–3/3	3"	80	2–200	2–100	310	150	555	208	188
ELV KL–4/4	4"	100	2–200	2–100	350	150	555	208	188
ELV KL–6/6	6"	150	2–200	2–100	510	225	710	325	240
ELV KL–8/8	8"	200	2–200	2–100	530	250	710	325	310

Dimensions refer to flanges compliant with DIN EN 1092-1 type11, series B, PN 16.
[1]2"/DN 50: vacuum adjustment 31– 50 mbarg: F*=F+40, C*=C+40.
Different sizes, pressure classes, temperatures, materials and fittings available on request.



tank connection
vacuum relief

You can find detailed information and contact details for enquiries relating to ELEVENT® at www.rembe.de.
Or just give us a call: T +49 2961 7405-0, info@rembe.de.

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