Safety is for life.™



REMBE® PROCESS SAFETY

Pressure and Vacuum Relief

Made in Germany

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 45 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

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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.

The advantages of rupture discs

- **Instant response –** nothing reacts faster than a rupture disc. Excessive overpressure and vacuum is relieved in milliseconds.
- **Full bore opening available for pressure relief** – the entire cross-section is used for fast and safe pressure relief.
- **Leak-tight –** prevents process 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.

All REMBE® rupture discs are **Made in Germany** and certified in accordance with the Pressure Equipment Directive (2014/68/EU) as well as all widely recognised and sector-specific international regulations and standards. Among others, these include ASME Sec. VIII, Div. 1, KOSHA (South Korea).

Made in Germany



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.

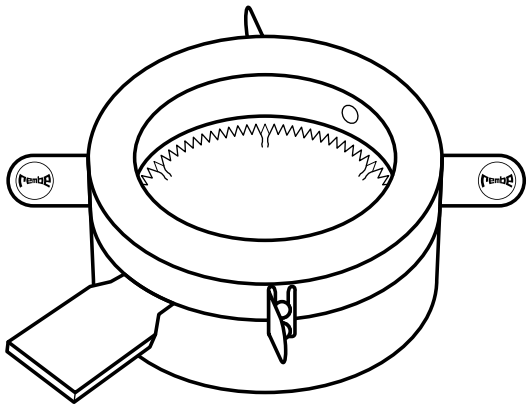
Solutions off-the-peg? Not from REMBE®.
Once we've looked at all the relevant documents, we will identify all the existing space for improvement and create a profitable safety policy for you that is perfectly geared to suit your company.

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 processes and operational requirements.

Whether it's explosion safety or pressure relief, 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 and explosion safety 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 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.

REMBE® archives all production documents:
All REMBE® rupture discs have a 7-digit serial / batch number. That's why, even decades later, we are able to identify your rupture disc within a short spare of time and produce parts with exactly the same specification. Please keep this serial / batch number ready when you have a request for spare parts.

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 ring.

Certifications

Management systems
EN ISO 9001:2015, ISO/TS 29001:2010, KTA 1401, EN ISO 14001:2015

Products
PED 2014/68/EU, ASME Sec. VIII, Div. 1, KOSHA (South Korea), China Manufacture License, ATEX Directive 2014/34/EU, TR CU 012/2011, TR CU 010 / 2011, TR CU 032 / 2013, FM Global, GL, EHEDG

Testing standards
AD 2000 Merkblatt A1, EN ISO 4126-2, EN 1127-1 /-13463/ -14373/-14491/-14797/-14994/-15233/-16009/-16447, VDI 3673, NFPA 68, NFPA 69, IEC 61508

Approval of German Aviation Authorities
Known Consignor (DE/KC/00912)

Approval of German Customs Authorities
AEOF – Customs Simplifications/Security and Safety (DE AEOF 126130)



REMBE® RUSH ORDER SERVICE

The fastest way to get your customized rupture disc

On workdays, weekends or even public holidays: we are at your service around-the-clock. With the REMBE® Rush Order Service we guarantee immediate production and delivery of your rupture discs. Available for both new and repeat orders.



Take advantage of this unique service

- **Reduce your warehousing costs.**
- **Prevent production downtime in your plant.**
- **Improve the productivity of your facility with economic rupture disc solutions from REMBE®.**



You can contact us any time – day or night – at +49 2961 7405-0



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 or premature opening of the 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 world's first reusable rupture disc

KUB® is the most rugged rupture disc currently available.

KUB® is not only extremely easy to install – it is also **simple to remove and reinstall.** In addition to a **standard operating pressure ratio of up to 98%*,** the design is robust enough to cope with incorrect handling before and during installation. The IG holder also helps in this regard (see page 33). The rupture disc and holder are designed to ensure that it is impossible to insert the rupture disc incorrectly. KUB® does not use bite-type seals. Instead it uses a leak-tight, metal-on-metal seal, which allows the rupture disc to be reinstalled after inspection.







Made in Germany

All versions are available with integrated signalling.

* Depending on the specific application.

For operators this means:

- **Simple, quick and torque-independent installation of the rupture disc with no special tools required.**
- **No risk of premature opening or damage to the rupture disc.**
- **Longer service life of the rupture disc reduces the costs associated with production downtime, maintenance and replacement discs.**

Using Leonard Euler's formula, we developed a unique cut profile – known as buckling pins – for the KUB's rupture element. Careful selection of the buckling pin geometry and arrangement in combination with the material of the rupture disc offer accurate control of the response pressure of KUB®. Moreover, the rupture disc is so rugged that even touching the dome of the membrane or dropping it accidentally from waist height will not affect its performance.

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. Its broad pressure spectrum allows you to equip many different processes seamlessly with just this one type of rupture disc – a major advantage: only one disc holder system is required. If the process conditions change (e.g. a different operating pressure), you can simply replace the rupture disc and continue to use the same holder. That saves money!

Design

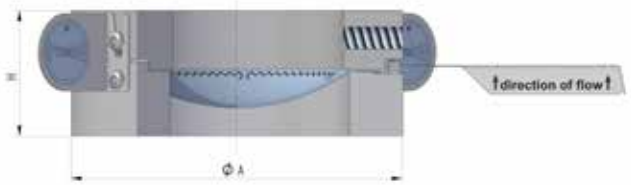
KUB® has a two layer design: The smooth, unblemished surface of the sealing membrane faces the process. The buckling pin element, which defines the burst pressure, faces away from the process so it does not come into contact with the medium. This is particularly useful with corrosive media. It guarantees that the rupture disc functions perfectly, prevents premature response and increases the service life of KUB®.

The sealing membrane ensures a leak-tight seal and prevents losses of the medium and contamination.

Your advantages

- Extremely robust design ensures a **very long service life** – for fewer production standstills.
- **No rupture disc fatigue,** even at high operating ratios.
- **Broad range of pressures and nominal sizes possible,** also ideal for pure liquid applications.
- Reliable disc holder system makes it **impossible to install the REMBE® rupture disc incorrectly.** No special tools 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.





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		Nickel		Monel*		Hastelloy*		Titanium		Tantalum	
max. allowable temperature		400 °C		400 °C		400 °C		400 °C		300 °C		400 °C	
NPS [in]	DN [mm]	Burst pressure [bar]											
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
¾"	20	3.2	130	3.5	130	3.0	130	3.5	130	5.0	130	5.0	130
1"	25	2.0	150	2.5	150	3.0	150	2.5	180	3.0	150	3.0	150
1¼"	32	2.5	100	3.0	100	3.0	100	5.0	100	3.0	110	3.0	110
1½"	40	1.5	140	1.5	140	2.0	140	1.5	150	2.0	140	2.0	140
2"	50	1.0	120	1.2	120	1.8	120	1.2	130	2.0	120	2.0	120
2½"	65	1.0	100	1.0	100	1.8	100	1.0	110	2.0	100	2.0	100
3"	80	0.50	95	0.80	95	1.0	95	0.80	100	1.5	95	1.5	95
4"	100	0.40	80	0.50	80	0.50	80	0.50	90	0.55	80	0.50	80
5"	125	0.40	60	0.40	60	0.50	60	0.40	70	0.50	60	0.50	60
6"	150	0.30	45	0.30	45	0.40	45	0.30	50	0.50	45	0.50	45
8"	200	0.30	35	0.30	35	0.40	35	0.30	40	0.40	35	0.40	35
10"	250	0.30	25	0.30	25	0.30	25	0.30	30	0.30	25	0.30	25
12"	300	0.20	15	0.25	15	0.20	15	0.20	18	0.30	15	0.30	25
14"	350	0.20	12	0.20	12	0.20	12	0.20	15	0.20	15	-	-
16"	400	0.20	10	0.15	10	0.20	10	0.20	10	0.20	10	-	-
18"	450	0.20	6.0	0.15	6.0	0.15	6.0	0.30	10	0.10	6.0	-	-
20"	500	0.15	6.0	0.15	6.0	0.10	6.0	0.15	6.0	0.10	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		Nickel		Monel*		Hastelloy*		Titanium		Tantalum		Inconel*	
Sealing Membrane		Nickel		Monel*		Hastelloy*		Titanium		Tantalum		Inconel*	
max. allowable temperature		400 °C		420 °C		400 °C		300 °C		400 °C		600 °C	
NPS [in]	DN [mm]	Burst pressure [bar]											
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
¾"	20	3.0	110	3.0	90	4.0	130	5.0	90	5.0	90	5.0	125
1"	25	2.5	100	3.0	90	3.0	200	3.0	90	3.0	90	3.0	150
1¼"	32	3.0	75	2.5	70	5.0	100	5.0	70	4.0	70	4.0	100
1½"	40	1.5	90	2.0	70	2.0	150	2.0	70	2.0	70	2.5	140
2"	50	1.2	80	1.8	60	1.5	130	2.0	60	2.0	60	2.0	120
2½"	65	1.0	70	1.8	40	1.5	110	2.0	40	2.0	40	1.5	100
3"	80	0.80	60	1.0	40	1.2	100	2.0	40	1.5	40	1.0	95
4"	100	0.50	45	0.50	30	1.0	90	1.5	30	0.50	30	1.0	80
5"	125	0.40	30	0.50	25	1.0	70	1.0	25	0.80	25	0.80	60
6"	150	0.30	25	0.40	20	0.80	50	0.50	20	0.50	20	0.60	45
8"	200	0.30	16	0.40	12	0.50	40	0.40	12	0.40	10	0.40	35
10"	250	0.30	12	0.30	10	0.40	30	0.30	10	0.30	7.0	0.40	25
12"	300	0.25	10	0.20	7.0	0.30	18	0.20	7.0	0.30	4.0	0.35	15
14"	350	0.20	8.0	0.20	5.0	0.30	15	0.20	6.0	-	-	0.30	12
16"	400	0.15	5.0	0.20	4.0	0.20	10	0.20	4.0	-	-	0.25	10
18"	450	0.20	4.0	0.10	3.0	0.30	8.0	0.20	4.0	-	-	0.15	6.0
20"	500	0.15	4.0	0.10	3.0	0.20	6.0	0.10	4.0	-	-	0.20	6.0
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 unique construction of the KUB® with its totally smooth sealing membrane means that the rupture disc has no score lines, indentations or notches on the process side eliminating trapped product residues during production or cleaning cycles. The design of the KUB® clean together with the integrated gasket and direct installation into tri-clamp connectors results in a simple and extremely hygienic solution.

Your advantages

- **Easy-to-replace, integrated clamp gasket (compliant with FDA- and USP Class VI).**
- Extremely robust design ensures a **longer service life** for longer production runs without 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]	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

* Min. 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





Also available with integrated signalling.

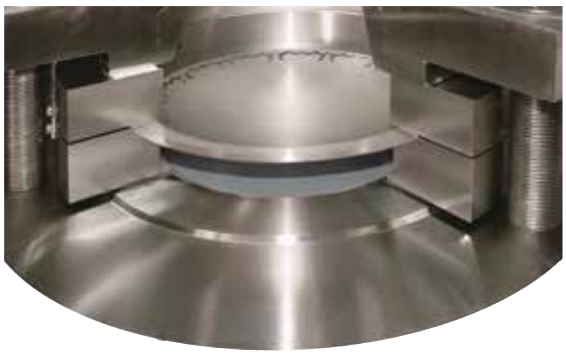




KUB® V

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.

*Depending on the specific application.

Technical data

NPS [in]	DN [mm]	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.

More information on the protection of safety valves with rupture discs from page 30 onwards.



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

Made in Germany



KUB® F

For installation directly between flanges

For burst pressures of up to 1 barg, the KUB® F 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]	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® clean, KUB® V and KUB® F at www.rembe.de. Give us a call on: T +49 2961 7405-0 or contact us via email: info@rembe.de.

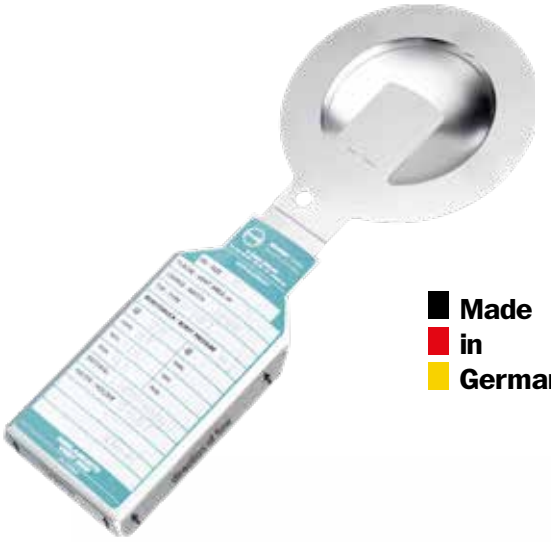
You can find appropriate rupture disc holders and signalling devices from page 32.

IKB®

Reverse acting rupture disc manufactured by precision lasers for accurate pressure relief

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 gas, steam and liquids[1] as well as for isolating safety valves. IKB® permits a standard operating ratio of up to 95 %[2].

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. This ensures exceptionally high resistance even under cyclic loads.



Made in Germany

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.

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

[2] Depending on the specific application.

Technical data

Max. recommended temperature*

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

Vent area and pressure range***

NPS [in]	DN [mm]	Vent area*** [cm²]	min. burst pressure [bar]	max. burst pressure [bar]	Installation height [mm]
¾"	20	3.4	8.0	100	41
1"	25	5.5	3.5	100	46
1½"	40	13	2.0	64	46
2"	50	22	1.5	64	53
3"	80	50	1.0	40	60
4"	100	80	0.80	40	68
6"	150	180	0.50	40	80

*Temperature range for rupture discs with CE mark may vary.
**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.
***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.



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.



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 prevents gases from escaping in normal operation.
The vacuum support, as the name suggests, enables ODV to be used in processes with a vacuum.

* Depending on the specific application.

Your advantages

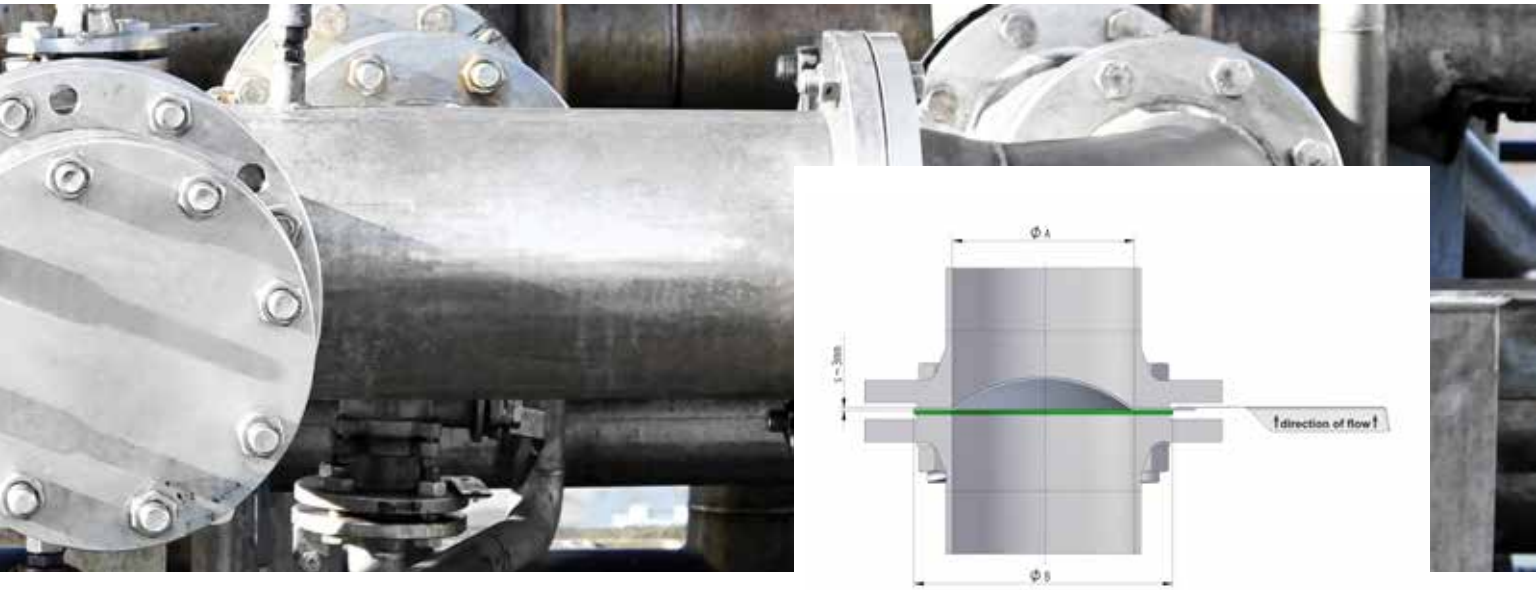
- **Suitable for use even with full vacuum** due to integrated vacuum support.
- **Minimum fragmentation during opening.**



Technical data ODV

Sealing Membrane		PTFE	FEP	Aluminium	Nickel	Monel*	Inconel*	Stainless Steel	Hastelloy*
		max. allowable temperature**							
NPS [in]	DN [mm]	230 °C	205 °C	120 °C	400 °C	430 °C	600 °C	400 °C	400 °C
		min. burst pressure [barg]							
¾"	20	1.5	3.0	6.0	10	13	20	22	28
1"	25	1.0	2.5	3.5	11	10	17	16	20
1¼"	40	0.90	2.0	2.5	4.5	6.0	10	10	15
2"	50	0.70	1.0	1.5	3.2	4.5	7.5	8.0	10
2½"	65	0.60	1.0	1.3	2.5	3.0	5.0	7.0	6.6
3"	80	0.40	0.60	1.0	2.0	2.5	4.3	6.0	6.0
4"	100	0.30	0.50	0.80	1.6	2.0	3.3	5.0	5.0
6"	150	0.20	0.40	0.50	2.2	2.5	3.1	5.0	5.0
8"	200	0.10	0.20	0.30	1.8	2.0	3.0	4.5	4.5
10"	250	0.09	0.20	0.30	1.5	1.5	2.5	3.5	4.5
12"	300	0.08	0.15	0.20	1.4	1.5	2.0	3.5	4.0
14"	350	0.08	0.15	0.20	1.2	1.5	1.5	3.5	4.0
16"	400	0.08	0.10	0.10	1.0	1.5	1.5	3.0	3.5
18"	450	0.08	0.10	0.10	0.90	1.5	1.5	3.0	3.5
20"	500	0.06	0.10	0.10	0.75	1.5	1.5	2.0	3.0
24"	600	0.05	0.10	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.
** Different temperatures may apply for rupture discs with CE mark.
Standard tolerance ±10% including manufacture tolerance.
Different sizes, pressure classes, temperatures, materials and fittings available on request.



Technical data ODV for installation directly between flanges (ODV-F)

NPS [in]	DN [mm]	Installation between welding-nexk flanges according to DIN 2631 or EN 1092-1* (PN6)	Vent area [cm²]	Burst pressure min. [barg]	Burst pressure max. [barg]	Standard vacuum resistance [mm WS]	Ø A [mm]	Ø B [mm]	H max. [mm]
1"	25	✓	3.50	2.0	6.0	absolut	29	56	12
1½"	40	✓	9.50	1.5	6.0	absolut	41	78	15
2"	50	✓	17.00	0.70	6.0	absolut	55	89	20
2½"	65	✓	25.00	0.70	6.0	absolut	71	115	25
3"	80	✓	35.00	0.50	5.0	absolut	83	130	35
4"	100	✓	60.00	0.30	5.0	absolut	107	152	35
5"	125	✓	80.00	0.30	5.0	absolut	132	180	40
6"	150	✓	125	0.20	2.0	absolut	160	205	45
8"	200	✓	245	0.10	2.0	absolut	208	260	50
10"	250	✓	400	0.10	2.0	absolut	261	315	60
12"	300	✓	600	0.10	2.0	absolut	310	370	70
14"	350	✓	750	0.10	2.0	absolut	342	420	80
16"	400	✓	1000	0.10	2.0	absolut	393	470	80
18"	450	only EN 1092-1*	1430	0.05	2.0	absolut	465	528	80
20"	500	✓	1660	0.05	1.0	absolut	494	575	90
22"	550	only ANSI	2150	0.05	1.0	absolut	560	660	90
24"	600	✓	2500	0.05	1.0	absolut	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

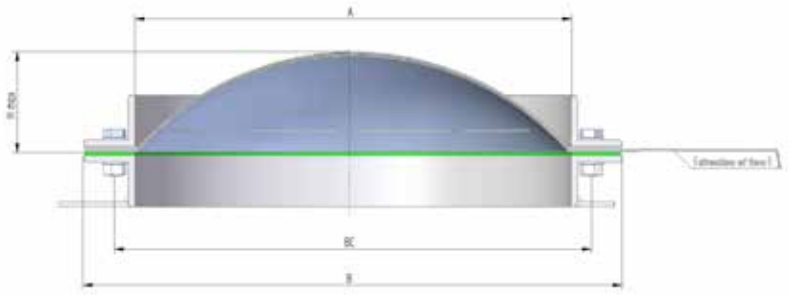
*Replaces DIN 2631 and following.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

Forward acting rupture discs

Technical data ODV for installation between flat steel/angular rings (ODV-FL)

NPS [in]	DN [mm]	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.
Give us a call on: T +49 2961 7405-0 or contact us via email: info@rembe.de.

You can find appropriate rupture disc holders and signalling devices from page 32.

STAR

For low to high pressures

STAR is a three-section solution primarily used in applications with low to high response pressures, especially in the oil and gas industry, petrochemicals 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. Extremely tight tolerances of +/- 5 % are possible. 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 integrated vacuum support guarantees high vacuum resistance.

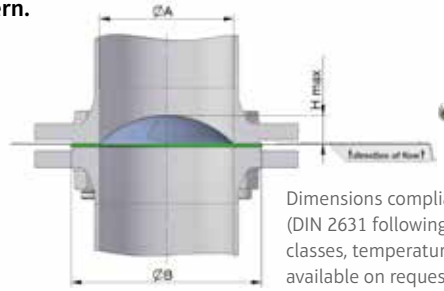
Your advantages

- **Minimal space required due to 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.**

*Depending on the specific application.

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

SFD

For low to high pressures

SFD is a laser sublimated rupture disc available in sizes up to 24".
Due to its vacuum resistance and the wide range of response pressures from 2 to 431 barg, SFD is ideal for a variety of gas or liquid applications, in the oil and gas industry, petrochemicals and chemicals as well as many others.
The standard operating ratio is up to 80 %* of the minimum response pressure.
The advanced laser manufacturing process guarantees fragmentation free opening even at the highest pressures.
Sublimated on the vent side, the SFD offers a smooth process face which reduces the risk of corrosion.

Your advantages

- **Space saving due to the low profile opening pattern.**
- **Fragmentation free.**
- **Suitable for the isolation of Safety Valves.**
- **Smooth process face.**

*Depending on the specific application.

Technical data

NPS [in]	DN [mm]	burst pressure min. [barg]	max. [barg]
0.75"	20	16	431
1"	25	10	431
1.25"	32	6.5	431
1.5"	40	6.4	431
2"	50	3.2	431
2.5"	65	3.2	431
3"	80	3.2	431
4"	100	2	431
5"	125	2	431
6"	150	2	431
8"	200	2	431
10"	250	2	431
12"	300	2	431
14"	350	2	259
16"	400	2	259
18"	450	2	103
20"	500	2	103
24"	600	2	103



Forward acting rupture discs

SINGLE LAYER RUPTURE DISCS

The father of all rupture discs

The rupture disc that started it all.

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 chemical industries 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.**

Made in Germany

*Depending on the specific application.

Technical data

Burst element		Stainless steel	Nickel	Inconel*	Monel*	Hastelloy*	Aluminium
Max. allowable temperature**		400 °C	400 °C	600 °C	430 °C	400 °C	120 °C
NPS [in]	DN [mm]	min. Burst pressure [barg]					
¼"	6.35	40	27.5	60	50	70	15
½"	15	30	11	21	20	43	6.0
¾"	20	16	9.0	15	10	28	2.6
1"	25	13	8.0	11	7.0	20	2.0
1½"	40	10	4.5	8.0	6.0	15	1.5
2"	50	6.0	3.2	7.5	4.5	10	1.0
2½"	65	6.0	2.5	5.0	3.0	6.6	0.90
3"	80	5.5	2.0	4.3	2.5	6.0	0.70
4"	100	5.0	1.6	3.3	2.0	5.0	0.30
6"	150	3.5	2.2	3.0	2.5	5.0	0.20
8"	200	3.0	1.5	2.5	2.0	4.5	0.10
10"	250	3.0	1.4	2.5	2.0	4.5	0.10
12"	300	2.0	1.4	2.0	2.0	4.0	0.10
14"	350	2.0	1.2	1.5	2.0	4.0	0.10
16"	400	2.0	1.0	1.5	2.0	3.5	0.10
18"	450	2.0	0.90	1.5	2.0	3.5	0.10
20"	500	2.0	0.75	1.5	1.5	3.0	0.10
24"	600	2.0	0.3	3.5	4.0	0.40	0.10

* 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 temperatures may apply for rupture discs with CE mark.
Standard tolerance ±10 % including manufacture tolerance.
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, single layer rupture discs, STAR and SFD at www.rembe.de. Give us a call on: T +49 2961 7405-0 or contact us via email: info@rembe.de.

You can find appropriate rupture disc holders signalling devices from page 32.



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 and processes involving gases or liquids. The rupture disc permits a standard operating ratio of 80 %* in the overpressure direction and 70 %* in the vacuum direction.

The bi-directional rupture disc can be supplied with an integrated SNR signalling unit (see page 35) suitable for use in hazardous areas. When the disc ruptures in either the overpressure or vacuum direction, the SNR gives an open circuit signal to advise of an activation.

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.

Made in Germany



Your advantages

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

* Depending on the specific application.

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

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 max. 230 °C.
Different nominal widths, pressure classes, temperatures, materials and fittings available on request.



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.

They can be produced in virtually any size, for extremely low pressures from 15 mbar and with very low burst tolerances.

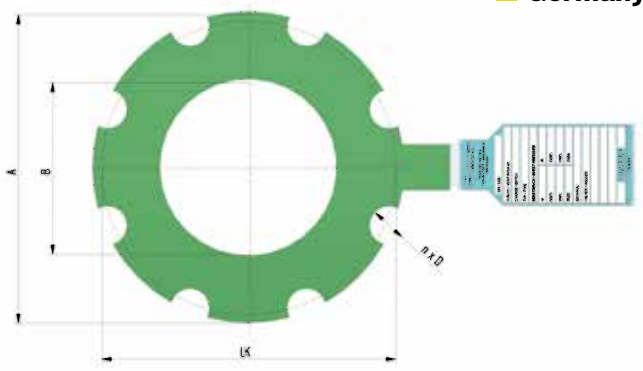
FLAT RUPTURE DISCS

For protection against overpressure and vacuum, e.g. 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 due to its half holes is suitable for all flange systems. A wide range of materials can be used as seals.



Also available in a vacuum resistant version.

Made in Germany



Your advantages

- **Requires less space than safety valves** due to the lower installation height.
- **Available for all flanges** and in any nominal width.
- **No holder required for installation.**

*Depending on the specific application.

Technical data

NPS [in]	DN [mm]	Pressure class PN	Pressure class ANSI	B [mm]	A [mm]	BC [mm]	n [quantity]	D [mm]
¾"	20	16–40	300–1500	22	73	75	4	14
1"	25	6–40	150–900	29	76	80	4	16
1½"	40	6–40	150–900	43	95	100	4	18
2"	50	16–40	150–300	55	107	120	4	20
3"	80	6–64	150–900	83	165	156	8	24
4"	100	16–64	150–600	107	190	186	8	24
6"	150	16–40	150–300	160	247	244	8	26
8"	200	6–10	150–300	208	276	280	8	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. Give us a call on: T +49 2961 7405-0 or contact us via email: info@rembe.de.

You can find appropriate rupture disc holders and signalling devices from page 32.



CUSTOMISED COMPACT RUPTURE DISCS

Very high or low pressures, high vacuums, temperatures of several hundred degrees Celsius, highly volatile media or difficult installation situations – if your processes have exceptionally high pressure relief requirements, you will find the optimum solution in the following section.

We have even successfully protected space satellites against overpressure. As you can see, no application is so lofty that we cannot protect it with the appropriate rupture disc.

An overview of our products

- HPRD: High pressure rupture discs for temperatures **up to +400 °C** as well as pressures **up to 5,000 barg.**
- UKB LS: Compact, micro-welded unit, which can even be used **with the lowest response pressures,** under **high vacuum** or in **ultra-clean processes.**
- Plug type rupture discs are normally used in **very small nominal widths** for high pressures and are equipped with a **very wide range of connections.**
- Extruder rupture discs: most frequently found in the **food processing and plastics industries.** As the name implies, these discs protect extruders against excessive pressure.

Our compact rupture discs are used in the following sectors:

Chemicals, pharmaceuticals, research and development, nuclear technology, oil & gas, plastics processing, food processing, pet food production, space technology and offshore plants as well as in hydraulic, pneumatic, low temperature and refrigeration technologies.

Customised REMBE® rupture discs offer you

- The potential for use in applications over an **extremely wide range of temperatures and pressures.**
- Maximum **leak-tightness.**
- **Customised design** of the housing and connections as well as **the smallest nominal widths.**
- Corrosion resistance.

All the rupture disc models presented here can be customised to meet any requirements in terms of connections, nominal widths, housing geometries, pressures or temperature resistance. They are all developed, manufactured and tested in accordance with your specifications.

We give you access to more than 40 years of experience in the development and production of special rupture discs – and one of the world's largest warehouse of raw materials in the sector. With more than 1,000 different starting materials, we offer you fast and reliable pressure protection solutions.

A selection of the materials stored in our warehouse:
- **Highest purity stainless steels,** e.g. 1.4435 or 1.4404
- **Nickel**
- **Monel**
- **Inconel**
- **Hastelloy**
- **Tantalum**
- **Titanium**
- **Zirconium**

In addition, we stock a variety of precious metals and high performance plastics.

A selection of the available connections:

- CF / KF flange
- ISO-K / ISO-F flange
- VCR fitting
- Weld neck flange (also with tongue and groove)
- Cutting ring fitting
- Threaded fitting



The REMBE® Rush Order Service is also available for our customised rupture discs – further information on page 08.

Customised compact rupture discs

UKB LS

The UKB LS comprises a customisable housing, a reverse acting rupture disc and a three-section knife. When the defined burst pressure is reached, the rupture disc is pressed against the knife and opens. This design provides the lowest possible burst pressures while at the same time offering good vacuum resistance even up to high vacuum conditions. The rupture disc and housing are micro-welded and all elements are made of metal. This ensures maximum leak-tightness. Leakage rates of up to 10^{-10} are possible. With a wide array of available connections, we supply the ideal pressure relief unit for every application – even for ultra-clean processes.

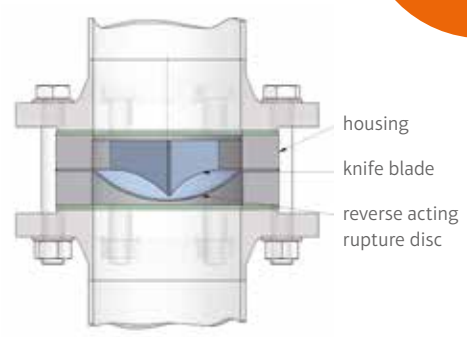
Despite its individuality, a number of "standard" sizes have become established for UKB LS over the last few decades. These are for installation between industry standard flanges.



Helium leak-tested

Your advantages

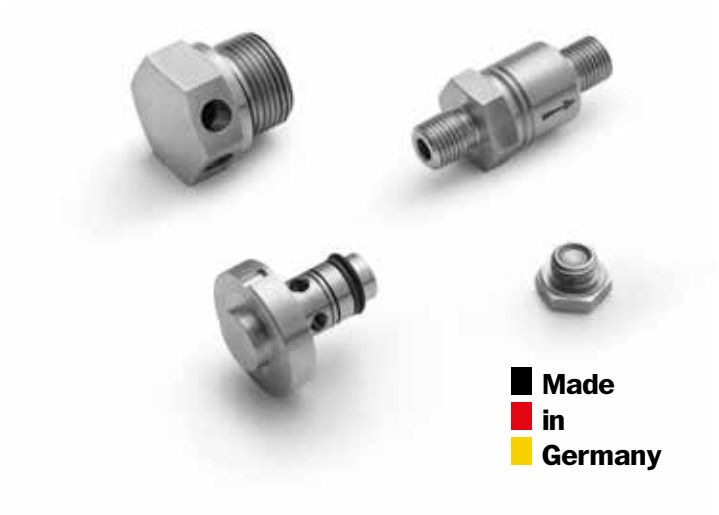
- Maximum **leak-tightness.**
- Also suitable for **high vacuum** applications.
- Out of this world: these rupture discs **even protect space satellites** – so you can be confident they will function reliably.



PLUG TYPE RUPTURE DISCS

Like UKB LS, plug type rupture discs consist of more than just the rupture disc itself – the housing is also part of the product and can be adapted to an extremely wide range of connections and geometries. Above all, plug type rupture discs are used to protect applications with high pressures and connections with small nominal widths.

In most cases, customers install single layer rupture discs. These are laser-welded for the tightest burst tolerances and absolute reliability. Depending on the model, the rupture disc can be welded without additional materials, fixed in position using special solder or clamped.



Your advantages

- The **smallest nominal widths** in combination with **very high burst pressures.**
- **Fully customisable** housing design.
- Easy to install.

HPRD HIGH PRESSURE RUPTURE DISCS

The geometry of our rupture discs offers you a valuable innovation: more stable and more durable rupture discs.

By modifying the design of our existing rupture discs, we have made a crucial improvement: Unlike other high pressure rupture discs, the weld seam is not subjected to shear and bending forces – only to pressure. Anyone with a technical knowledge of this area understands that this makes a major difference. Geometrically separating the area under peak stress and the weld seam makes the rupture disc more durable and able to comply with the tightest burst tolerances – tolerances of +/- 3 % and better, depending on the specified burst pressure.

The new HPRD rupture discs provide long-term protection for processes with temperatures up to 400 °C and pressures up to 5000 barg and beyond.

They have already proved themselves under real process conditions and in a wide range of customer applications. These include reactors, autoclaves and compressors in a variety of high pressure processes, such as LDPE production.

Your advantages

- Extra long service life even at the highest temperatures and pressures.
- Burst tolerance of +/-3 % prevents premature rupture disc response and thus production standstills.
- Design can be adapted in any way.



Made in Germany

EXTRUDER RUPTURE DISCS

Extruder rupture discs are a reliable solution for relieving excessive pressure in plastic and food extruders. Like all our customised rupture discs, the length, geometry, (threaded) connections, temperature resistance and response pressure can be tailored to your specific requirements. The rupture disc is welded or soldered into the housing.

The special gas-tight soldered or welded rupture disc membrane is installed directly in the area of the extruder screw. This eliminates the risk of dead spaces where residues can accumulate. REMBE® extruder rupture discs can also be fitted with an integrated signalling device (optional), which informs the process control system about the response of the rupture disc.

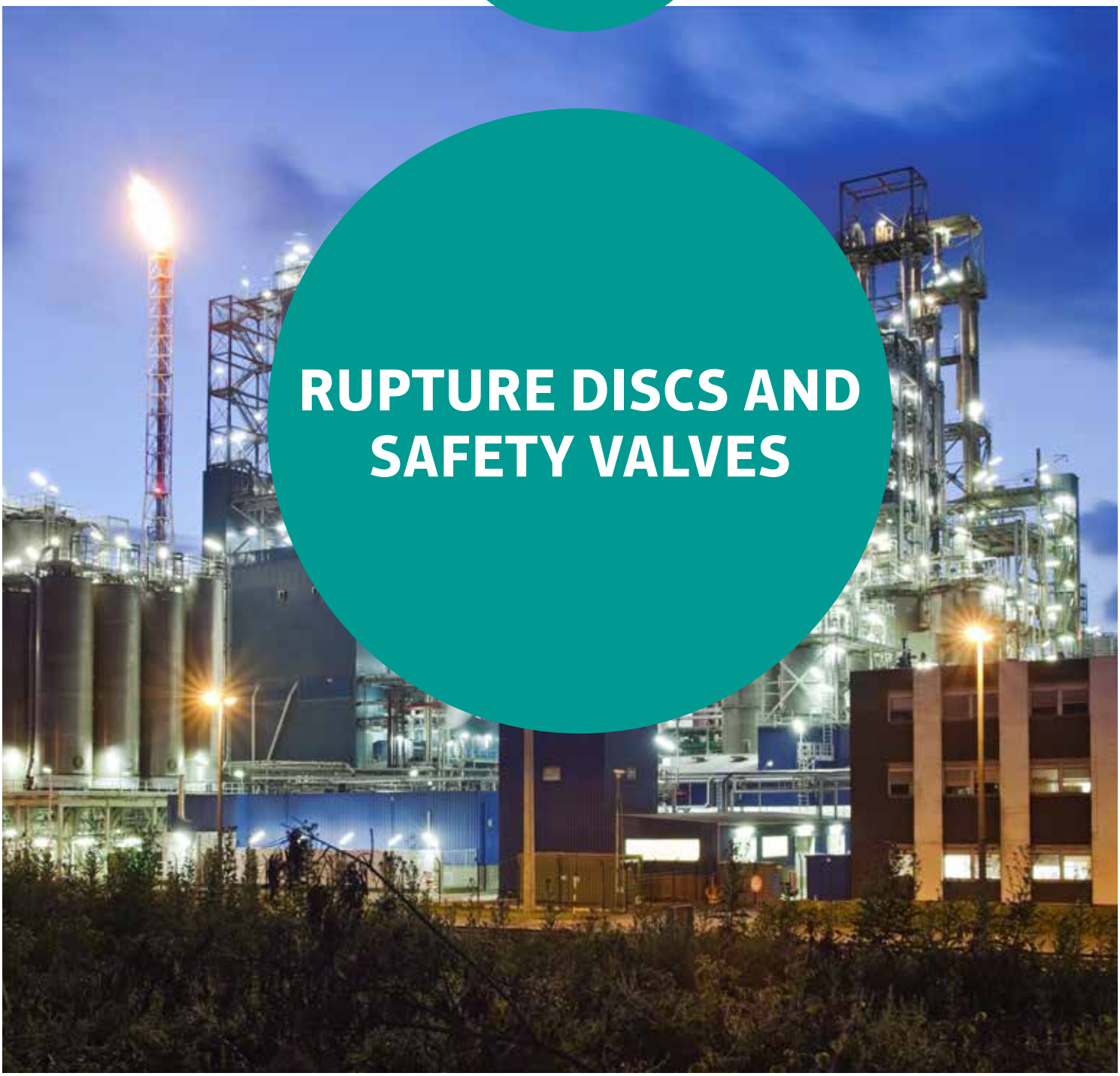
All standard connections/bores for pressure transducers or probes on plastic extruders can be fitted with REMBE® rupture discs.



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Your advantages

- Maximum plant safety and availability in models with signalling devices.
- Compact unit can be replaced quickly and easily.



RUPTURE DISCS AND SAFETY VALVES

Rupture discs and safety valves can be combined in different configurations: The rupture disc can be installed below the safety valve or the two pressure relief systems installed in parallel. If the systems are installed next to each other, the **response pressure of the rupture disc is higher than that of the safety valve**. If the rise in pressure is so large and rapid that the safety valve cannot respond sufficiently quickly or if it fails to open, the **rupture disc serves as a reliable backup system to relieve the pressure**. If the rupture disc is installed below the safety valve it can perform a number of roles:

Improved leak-tightness

Even if your process does not involve toxic or very expensive media – safety equipment should still ideally be able to operate leak-free over long periods. Safety valves tend to leak more after being triggered for the first time. However, a REMBE® rupture disc positioned upstream of the safety valve ensures a perfect, leak-tight seal and saves you money. After all, it is cheaper to replace a rupture disc than a safety valve.

Protection against “challenging” media

Every operator who has ever been in this position knows the problem: The functionality and reliability of some safety equipment is affected to a greater or lesser degree by corrosive, adhesive, polymerising or viscous media.

This also applies to safety valves. If the valve seat is sticky, it is no longer possible to guarantee the defined response pressure. This poses a risk even before the first time the safety valve is triggered. Cleaning and inspections are therefore essential to guarantee that – in the case of an emergency – the safety valve responds at the specified pressure. A REMBE® rupture disc installed upstream protects the safety valve against caking and adhesions. Reverse acting rupture discs like KUB® have a smooth metal surface on the side facing the process, which prevents the build of deposits. Breaking points are isolated from the process. This ensures that the specified response pressure is maintained at all times and eliminates the possibility of a late response.

In liquids, gases and two-phase media, a REMBE® rupture disc upstream from your safety valve simply saves you money:

- Improved leak-tightness for lower loss of media and long-term compliance with regulations and legal requirements.
- You can use safety valves made from lower cost materials even with corrosive, adhesive or polymerising media.
- Additional savings through in-situ tests.



A relief valve secures the space between the rupture disc and the safety valve.

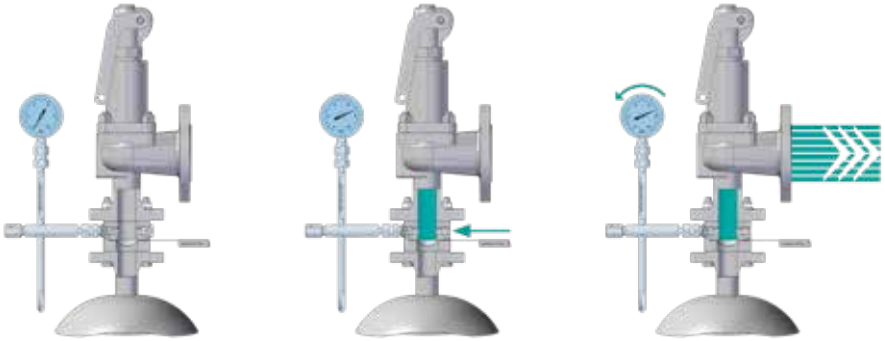


Special safety valves and KUB® Clean (p. 13) are used in hygienic applications.

In-situ testing of safety valves

Normally, safety valves have to be removed in order to test whether they are functioning correctly. This is time-consuming and expensive. However, in combination with REMBE® rupture discs, you can test your safety valves without moving them anywhere. To do this, the space between the rupture disc and the valve stroke is pressurised.

As KUB® has a back pressure resistance of 135 %, the rupture disc remains undamaged while the safety valve is being inspected. If in-house regulations nonetheless require the safety valve to be removed for inspection, the rupture disc can be left in position in a separate flange connection in order to close the opening while this work is being performed.



In-situ test: The space between the rupture disc and the safety valve is pressurised in order to test whether the safety valve is functioning correctly.



RUPTURE DISC HOLDERS

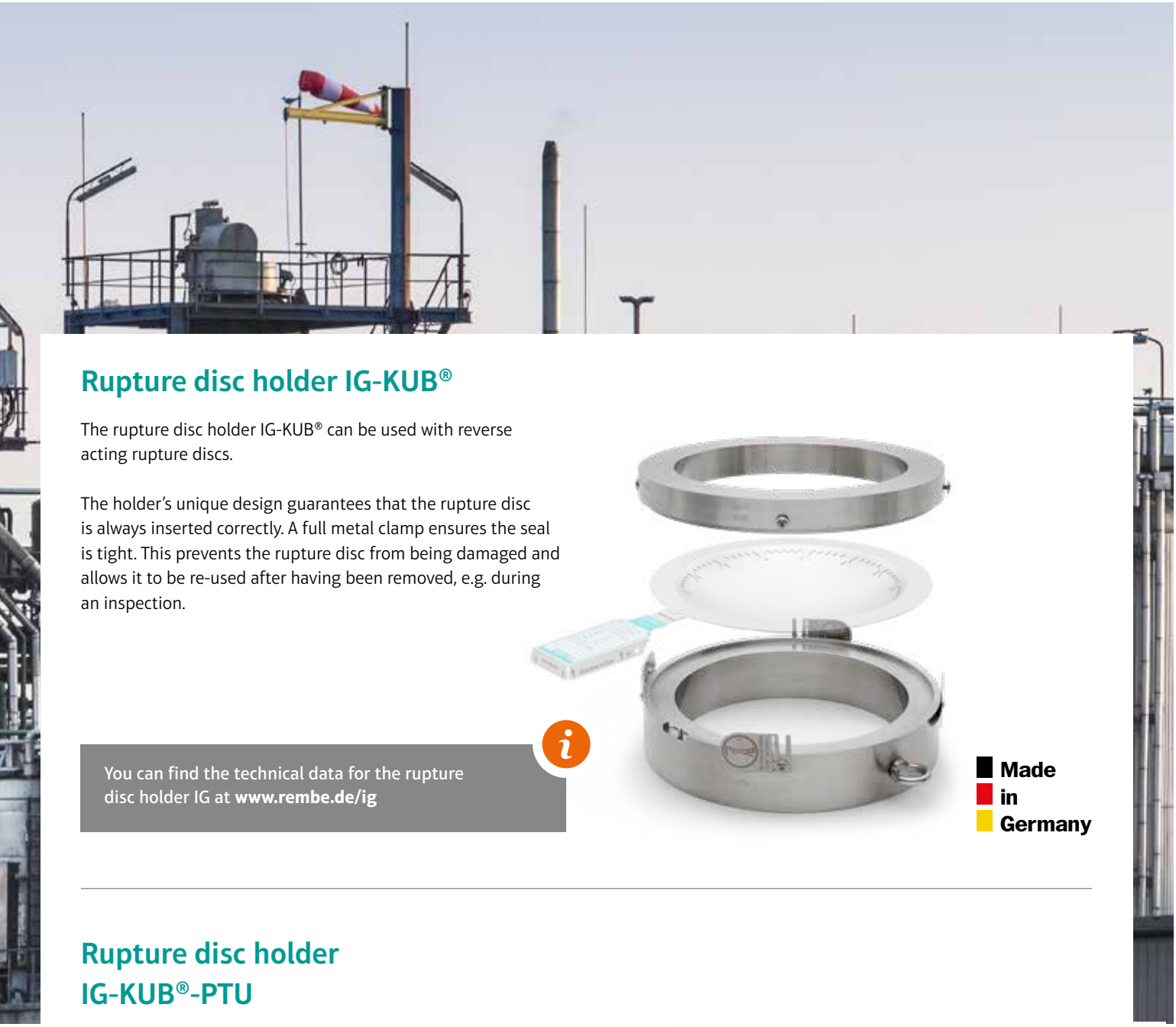
For the perfect installation

REMBE® guarantees perfect installation and performance for your rupture disc. 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.**
- 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-KUB®

The rupture disc holder IG-KUB® can be used with reverse acting rupture discs.

The holder's unique design guarantees that the rupture disc is always inserted correctly. A full metal clamp ensures the seal is tight. This prevents the rupture disc from being damaged and allows it to be re-used after having been removed, e.g. during an inspection.

You can find the technical data for the rupture disc holder IG at **www.rembe.de/ig**

Made in Germany

Rupture disc holder IG-KUB®-PTU

The IG-KUB®-PTU rupture disc holder is a flat-seat holder for reverse acting rupture discs IKB® and KUB®.

The unique design of the IG-KUB®-PTU rupture disc holder always guarantees the proper insertion, and enables **the pre-assembly of the rupture disc**. This avoids a damaging of the rupture disc, which can then be **reused after dismantling**, for example, within the scope of an inspection.

The sealing edge of the seat surface ensures **a leak-free sealing through a fully-metallic clamping**. The inside diameter of the rupture disc holder outlet performs a support function and guarantees the optimal opening behaviour when the defined burst pressure is reached.

The **integrated pre-assembly bolts** allow an **easy and safe installation** of the rupture disc. The holder **can be used for a wide range of flanges and various pressure classes.**



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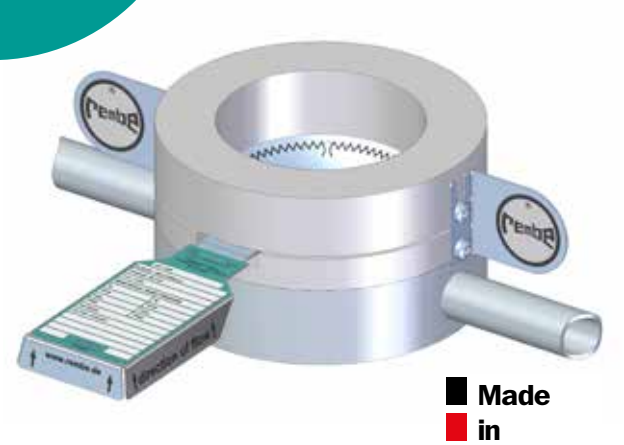
Rupture disc holders



Made in Germany

Double disc assembly rupture disc holder

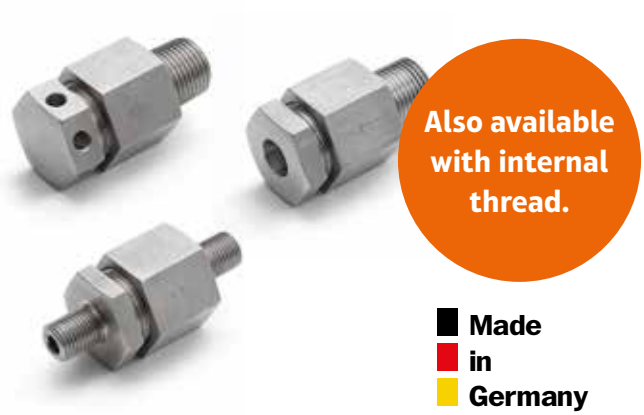
The use of two rupture discs in combination allows the process to continue safely after one disc has been destroyed as the process is still secured by a second (closed) disc. For this reason, production processes that use toxic or corrosive media or have variable or high back pressures are often protected by two rupture discs installed in series. These can either be installed individually or more elegantly in a double disc assembly rupture disc holder. This also makes it possible to use different types of rupture disc in combination, e.g. a three-section rupture disc and a reverse acting rupture disc. Likewise, the two rupture discs can be designed to respond at different pressures. The space between the two discs is monitored to ensure that no back pressure builds up and any leakages due to corrosion of the primary rupture disc are identified immediately.



Made in Germany

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.



Also available with internal thread.

Made in Germany

Threaded holder

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").



Made in Germany

Threaded holder with union nut

The rupture disc holder is used to save space, especially in rigid pipe systems.



SIGNALLING DEVICES

Automated processes use intelligent signalling systems to keep you informed at all times 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

The SK signalling device 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

This signalling unit was specially developed for bi-directional rupture discs and is also used with low pressure discs for overpressure or vacuum protection. The SNR uses a proximity switch, which offers inductive, intrinsically safe monitoring in accordance 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.

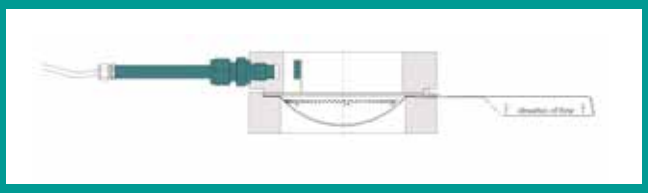
NIMU

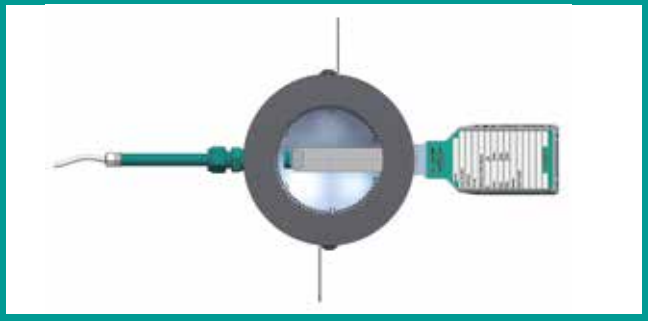
NIMU is a reusable, non-invasive detection system

After an overpressure event, and the associated opening of the rupture disc, the outlet part of the rupture disc holder must be removed, the rupture disc replaced, and afterwards the system can be put back into operation. The days when the signalling cables also had to be routed again to the respective switching box are finally over.

Additionally: The process is absolutely leak-tight. The blind tapping in the holder replaces the tapping which is usually required. The absence of cable glands (required for the holder tappings for conventional signalling cables) means that the cable glands used cannot become porous, thus preventing an escape of the process media.







Your advantages

- **Totally leak tight process.**
- **Cost-effective signalling device.**
- **Full bore relief.**
- **Easy function testing and maintenance.**
- **Eliminates false alarms.**
- **Reusable.**

ATEX
EC type examination certificate no.
IBExU15ATEX1018





SB/SB-S

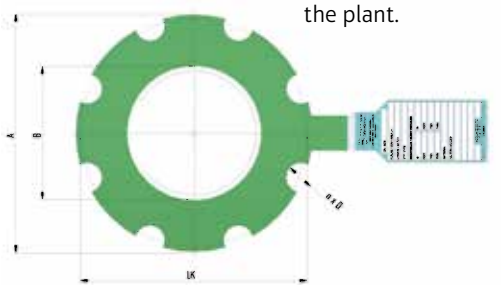
Like the SK signalling device, this signalling system uses the principle of closed circuit technology. The signalling membrane is mounted directly between the flanges on the venting side of the rupture disc. When the rupture disc breaks, the pressure of the discharging process medium destroys the SB-S membrane and the intrinsically safe circuit is broken. This sends an error message to the process control system. 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 [quantity]	D [mm]	SB/SB-S: signalling and response pressures at 22 °C
		PN	ANSI						
¾"	20	6 – 40	150 – 900	73	22	75	4	14	3.2
1"	25	6 – 40	150 – 900	76	29	80	4	16	2.3
1½"	40	6 – 40	150 – 900	95	45	100	4	18	1.5
2"	50	6 – 40	150 – 900	107	58	120	4	20	1.1
2½"	65	6 – 40	150 – 900	-	-	-	-	-	1.0
3"	80	6 – 40	150 – 900	165	84	156	8	24	0.80
4"	100	6 – 40	150 – 900	190	108	186	8	24	0.60
6"	150	6 – 40	150 – 900	247	160	244	8	26	0.40
8"	200	6 – 40	150 – 900	276	208	280	8	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
16"	400	6 – 40	150 – 900	-	-	-	-	-	0.10
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.
Give us a call on: T +49 2961 7405-0 or contact us via email: info@rembe.de.











Also available in hastelloy or with additional inert gas connection.

Made in Germany

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.

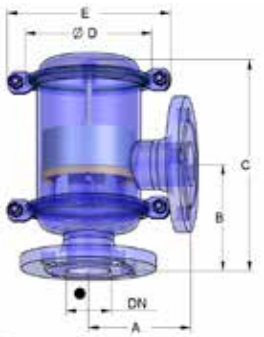
Your advantages

- **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.**
- **Reduces nitrogen requirements** to a minimum for inerted processes.
- Ideal for **applications with high product purity and quality assurance requirements.**

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 EN 1092-1 type11, series B, PN 16.
Different sizes, pressure classes, temperatures, materials and fittings available on request.

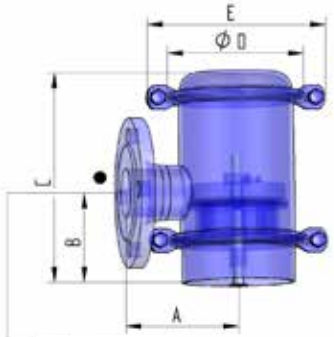


tank connection

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 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.

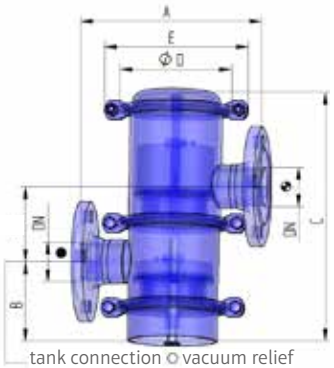


tank connection

Technical data ELEVENT® for applications with pressure and vacuum

Type	NPS [in]	DN [mm]	Pressure	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	2–100	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 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.



pressure relief
tank connection ○ vacuum relief

You can find detailed information and contact details for enquiries relating to ELEVENT® at www.rembe.de.
Give us a call on: T +49 2961 7405-0 or contact us via email: info@rembe.de.

GLOBAL PERSONAL SERVICE

REMBE® locations

We have founded a number of companies around the world to provide you with local service. REMBE® is represented in more than 80 countries around the world by well-known and long-standing partners.
To find your local representative, contact us at T + 49 2961 7405-0, info@rembe.de or www.rembe.de

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