

SAFETY AND PROTECTION WITH LE-SAFE

Keeping systems safe and protecting the environment are at the heart of everything we do. That's why we integrate measures into our manufacturing process to prevent harmful emissions, while producing high-quality end products that reduce diffuse emissions in industrial plants. Our aim is to minimise unreasonable risks - both for our customers' peace of mind and to protect our natural environment.

With this goal in mind, we create innovative products using a sustainable manufacturing process that combines social responsibility with our commitment to the environment and economic efficiency. Thanks to our integrated management system [IMS] and our certification under DIN EN ISO 14001:2015, the global standard for environmental management systems, we continue to set new standards in this area.

ADHESIVE-FREE COMPOSITE GASKETS

Adhesives can have a significant impact on the safety and reliability of systems in certain applications. In addition to posing a spontaneous combustion hazard in oxygen-carrying equipment and components, adhesives can negatively affect the performance of shut-off valves and cause significant corrosion when in contact with metallic components.

Our LE-SAFE range includes a variety of high-performance gaskets whose metal cores are bonded with pure graphite components without the use of adhesive. These products have reliable mechanical properties [strength] and leak-tightness [leak class], and their sealing characteristics match those of traditional gaskets. The improved product characteristics provide clear advantages in all industrial applications and for sustainable supply chain management. Our expert knowledge for your benefit!

APPLICATION	FEATURES				
	No contamination	Does not become brittle	Reduced pitting & stress corrosion cracking	Longer service life & shelf life	Sustainable supply chain
Oxygen [O ₂ CLEAN]	X			X	X
High temperature	X			X	X
Low temperature [cryogenic technology]	X	X	X	X	X
All industrial applications	X		X	X	X

LE-SAFE & O₂ CLEAN

By combining innovative LE-Safe manufacturing technology with the opportunities of our internal cleanroom facility, we provide maximum reliability for applications which have to meet the highest hygiene standards. All of our O₂-Clean products use expanded pure graphite materials from batches that have been tested by the German Federal Institute for Materials Research and Testing [BAM].

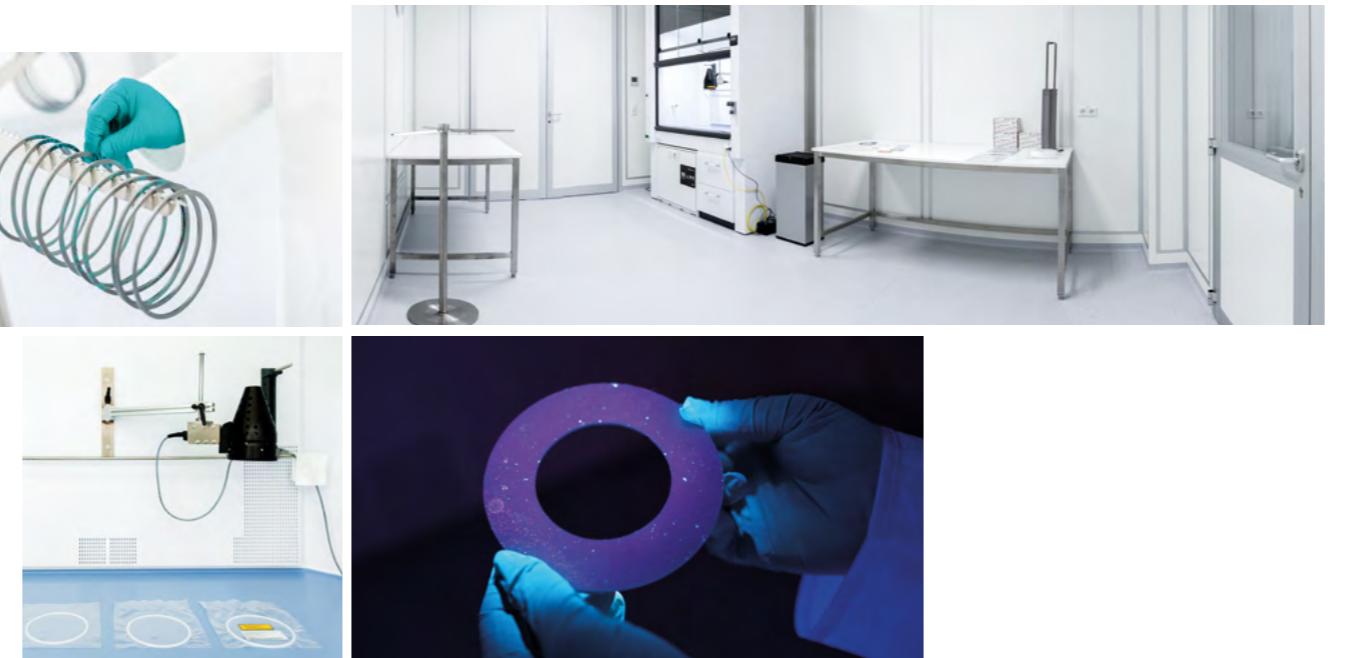
BAM holds a critical view and does not recommend using zircon or zircon alloys, titanium or titanium alloys or alloys containing titanium [e.g. 1.4571 and 1.4541 grade stainless steel] or metallic materials containing more than 2.5% aluminium for applications involving oxygen. We provide a range of alternative materials which are suitable and in stock at IDT, such as 1.4401/1.4404 and 1.4828.

O₂ CLEAN

High purity oxygen is used for a variety of chemical, pharmaceutical and medical applications. It is considered extremely dangerous in a liquid and gas state and at high operating pressures. Technically pure oxygen combined with oil and grease can spontaneously combust and result in life-threatening fires. The hazard posed by oil and grease can be minimised by using a closed process chain from the manufacture and further processing of raw materials through to the ultimate use in the system.

CLEANROOM FACILITY | DIN EN ISO 14644, CLASS 7

Our internal cleanroom facility enables us to implement measures designed to eliminate or reduce the harmful effects of contaminants which have the potential to be extremely hazardous in oxygen applications or in food/pharmaceutical production processes. Our DIN EN ISO 14644 Class 7 facility features a personnel airlock including a gowning room, a goods airlock, a testing room with a fume hood and UV/white light system and a separate area for packaging, customisation and storage. The quality and reliability standards once reserved for medical technology applications are increasingly being applied to gasket technology as well, resulting in the need for strict monitoring of environmental conditions.



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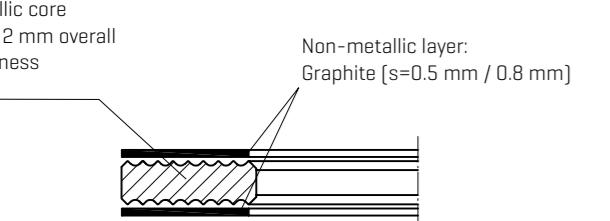
LE-SAFE KAMM PROFILE GASKETS

with/without centring ring

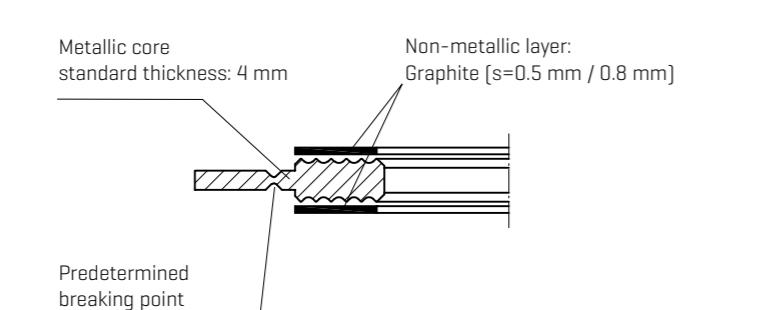
Without adhesives, pure expanded graphite layers are bonded to both sides of the grooved stainless steel core. The profile of the core is optimally matched with the thickness of the graphite layer. Kammprofile gaskets need low minimum gasket seating stress, but are also suitable for high seating stresses.

STYLES	DIMENSIONS & GEOMETRIES	APPLICATIONS & FEATURES
• Without integrated centring ring	• DIN EN 1514-1 / -6	• High maximum operating pressure
• With integrated centring ring [machined]	• DIN EN 12560-1 / -6	• Low leak rate
• Loose centring ring	• ASME B 16.20 / B 16.21	• Suitable for extreme operating conditions
• Tolerances according to DIN ISO 2768-1v	• Special dimensions [outer diameter \leq 650 mm]	• Blow-out proof
	• Round, oval, frame gaskets	

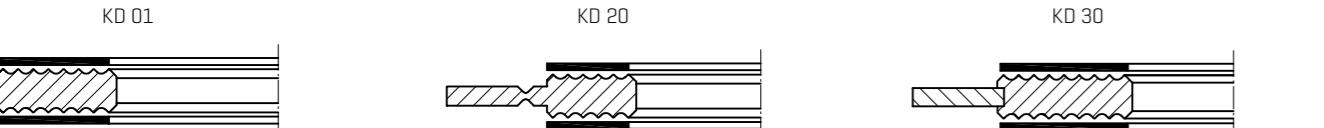
DESIGN



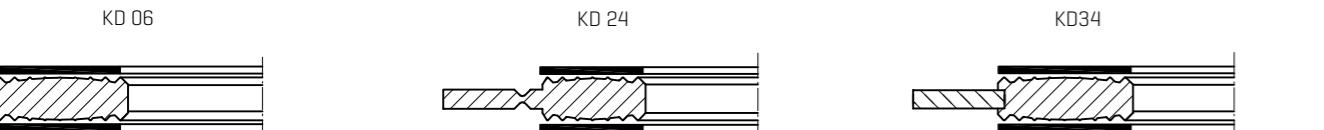
STRUCTURE



PROFILE PARALLEL ROOT



PROFILE CONVEX ROOT



LIMITS OF USE

Pressure	max. 400 bar
Temperature	-200 to +550°C ¹⁾

APPROVALS & TEST REPORTS

BAM test report on oxygen [gas, liquid]
Fire Safe API 6FB

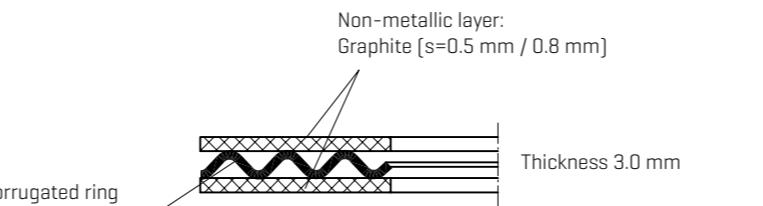
LE-SAFE CORRUGATED GASKETS

with/without stainless steel eyelet

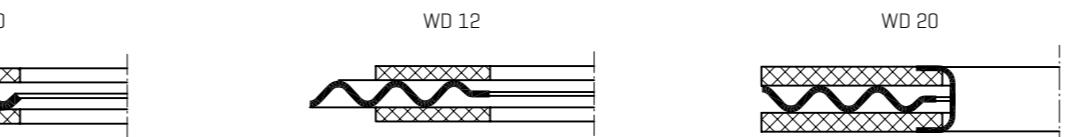
Without adhesives, pure expanded graphite layers are bonded to both sides of the corrugated stainless steel ring. The corrugated geometry of the core causes high compression of the non-metallic material on the crests, a low diffusion cross-section, increased blow-out resistance and improved stability and handling. The gasket provides good leak tightness performance even at low seating stresses. The capacity for adjustment and compensation is high. The corrugated gasket is particularly suitable for older equipment.

STYLES	DIMENSIONS & GEOMETRIES	APPLICATIONS & PROPERTIES
• With stainless steel eyelet	• DIN EN 1514-1 / -4	• Low leak rate
• Without stainless steel eyelet	• DIN EN 12560-1 / -4	• Ideal for older equipment
	• ASME B 16.20 / B 16.21	• Blow-out proof
	• Special dimensions [outer diameter \leq 650 mm]	
	• Round, oval, frame gaskets	

DESIGN



PROFILES



OPERATIONS SPECIFICATIONS

Pressure	max. 160 bar
Temperature	-200 to +550°C ¹⁾

APPROVALS & TEST REPORTS

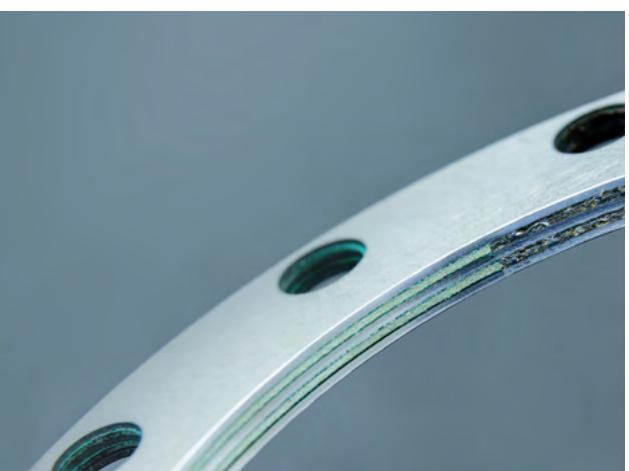
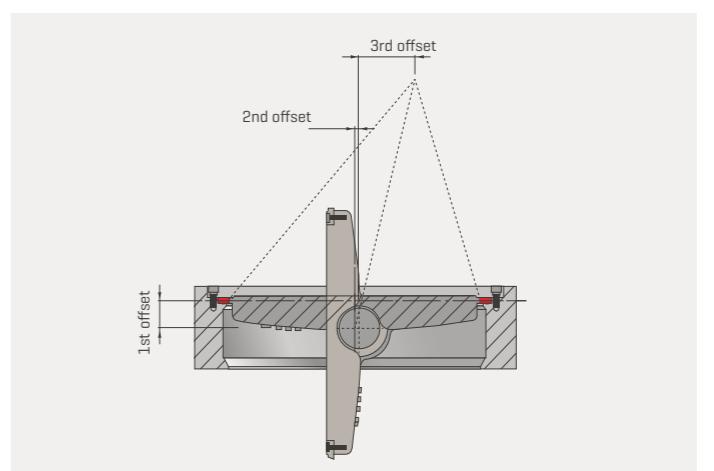
BAM test report on oxygen [gas, liquid]
Fire Safe API 6FB

LE-SAFE BUTTERFLY VALVE SEALS

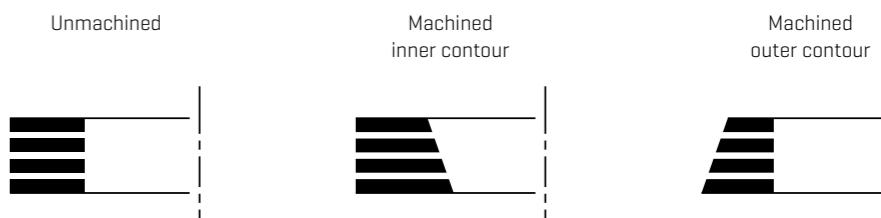
for triple-offset valves [TOSV]

The characteristic sandwich design of the gaskets provides an optimal bond between the material layers, making them easy to adapt to different valves and housings. This allows for higher operating temperatures and pressures, in addition to increased product longevity. The specially machined inner contour of the gasket has a crucial impact on the tightness achieved by the valve and can be produced with high-quality surface finishes to meet customer specifications. Customers can choose from a range of different stainless steel and alloy materials.

STYLES	DIMENSIONS & GEOMETRIES	APPLICATIONS & PROPERTIES
• Sandwich structure	• All dimensions up to outer diameter \leq 650 mm	• Low leak rate
	• Parts tailored to customer requirements	• Suitable for extreme operating conditions
		• Easy to adapt to different valves and housings



PROFILES



OPERATIONS SPECIFICATIONS

Temperature	-200 to +550°C ¹⁾
BAM test report on oxygen [gas, liquid]	

APPROVALS & TEST REPORTS

BAM test report on oxygen [gas, liquid]
1) from 450°C, please contact the manufacturer