KLINGER®
Auto Solutions

PRODUCT PORTFOLIO
Automotive



KLINGER India

www.klinger.in

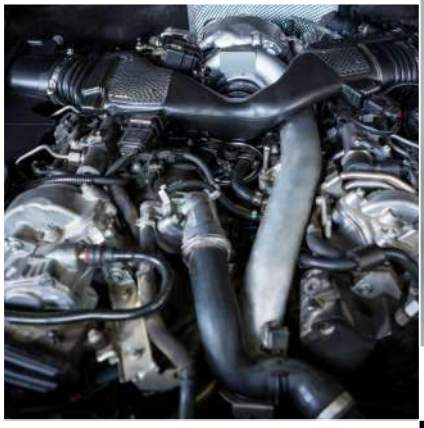
KLINGER Automotive Solutions

Modern vehicles are getting more and more powerful while at the same time requirements for fuel economy and emissions are getting more and more stringent. This is driving a shift in technology to more highly boosted, more complex engines. The sealing and shielding solutions from KLINGER enable this shift in engine technology.

We offer a wide range of CNAF, Graphite, Mica and Rubber-coated Steel gasket materials for sealing applications, and provide the automotive industry with technical support and solutions.

Automotive Applications

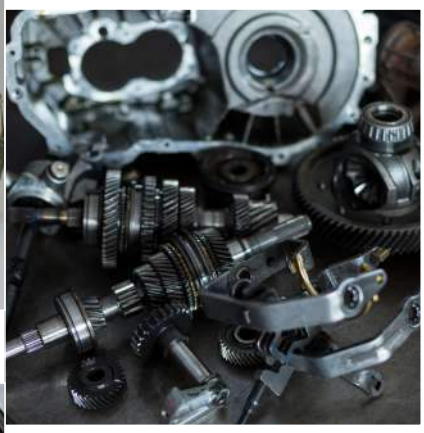
Heavy Duty Engine





Turbo Charger

Heavy Duty Transmission



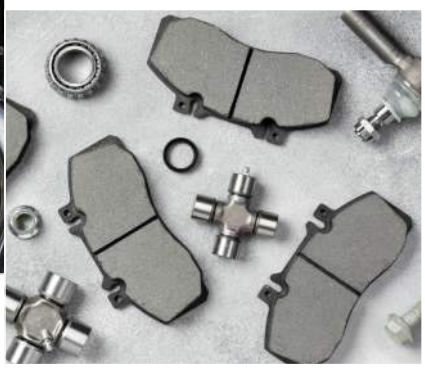
EGR Valve





Two-Stroke Engines

Braking System



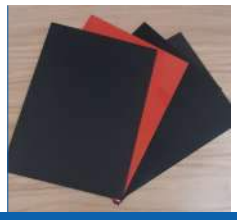
KLINGER Group

The KLINGER Group, headquartered in Austria, is a global network of 45 manufacturing, sales and service entities with €635 million in annual sales. With 130 years of expertise and experience, it has become a leading supplier of sealing and fluid control solutions worldwide.

KLINGER has supplied materials worldwide since the early days of automotive production.

KLINGER® POLYSTRAT RUBBER COATED STEEL MATERIAL FOR AUTOMOTIVE - SHIM & GASKET APPLICATIONS



Material	KLINGER® POLYSTRAT FSE20-01	KLINGER® POLYSTRAT NS72-24	KLINGER® POLYSTRAT FM20-01	KLINGER® POLYSTRAT AS72-24
Description	FKM-coated stainless steel for gasket applications with excellent temperature resistance, good resistance against mineral, synthetic oils and coolant.	Polystrat NS72-24 is a NBR-coated steel for gasket applications with good resistance against mineral and synthetic oils.	Foamed NBR-coated steel for gasket applications that require a conformable material with good resistance against mineral & synthetic oils.	AEM-coated steel for gasket applications with good temperature and chemical resistance. Surface treatment: Anti-stick.
Steel Type	Stainless Steel	Low Carbon Steel	NBR/Carbon steel/NBR	AEM/carbon steel/AEM
Steel Specs	SS301 FH	DC01 C290	DC01 C390	DC01 C390
Thickness of Carrier (Core Metal)	0.2mm	0.25mm	0.2mm	0.25mm
Rubber Coating	FKM	NBR	Foamed NBR	AEM
Coating Thickness	2 x 0.025mm	2 x 0.065mm	2 x 0.2mm	0.065 ± 0.005 mm
Total Thickness	0.25mm	0.38mm	0.6mm	0.38mm
Application	Automotive / General Industry / Pumps / Compressors	Automotive / General Engines	Automotive / General Engine / Small Engine / Cover Gaskets	Automotive / General Industry / Pumps / Compressors
Standard Roll Length & Width	Roll length up to 500 m Roll Width Up to 500 mm	Roll length up to 500 m Roll Width Up to 500 mm	Roll length up to 500 m Roll Width Up to 500 mm	Roll length up to 500 m Roll Width Up to 500 mm
Storage Life	24 months according to DIN 7716. Higher storage temperature and or longer storage time may cause a quality decrease of the product.			







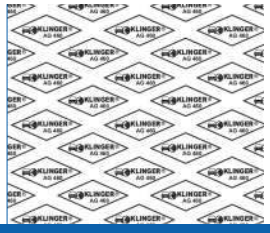

Material	KLINGER® AC 11.600	KLINGER® AC 16.600	KLINGER® AC 20.600	KLINGER® AC 35.600
Basis	Aramid/NBR	Aramid/NBR	Aramid/NBR, expanded metal reinforced	Aramid/SBR
Key Features	Excellent oil and fuel resistance with good stress relaxation and tensile strength	Excellent oil and fuel resistance with good tensile strength and stress relaxation	Excellent oil and fuel resistance with good stress relaxation and tensile strength	Controlled swelling in oil and fuel, and very good conformability at low bolt loads
Typical Applications	Intake manifold, oil pan, gearbox, water and fuel pump, timing cover, water socket and housing cover	Intake manifold, oil pan, gearbox, water and fuel pump, timing cover, water socket and housing cover	Intake manifold, exhaust manifold, oil pan, timing cover	Intake manifold, oil pan, water pump, valve and housing cover, water socket, timing cover
Max Temperature °C	250	300	400	200
Max. Pressure Bar	60	100	80	40
Thickness mm	0.30 - 2.00	0.30 - 2.00	0.80 - 2.00	0.30 - 1.60
Density g/cm3	1.50 - 1.75	1.50 - 1.70	1.80 - 2.10	1.40 - 1.60
Compressibility ASTM F36 J %	08 - 12	07 - 10	5 - 13	25 - 33
Recovery ASTM F36 J %	> 45	> 45	> 40	> 45
Tensile Strength Cross-grain DIN 52910 Mpa	> 12	> 16	> 24	> 3
Stress Relaxation DIN 52913 50 Mpa, 16h/300°C Mpa	> 22	> 22	> 28	> 16
Ignition Loss DIN 52911%	< 33	< 40	< 33	< 33
Fluid Resistance ASTM F 146				
Oil IRM 903 (5h / 150 °C)				
Thickness Increase %	≤ 7	≤ 7	≤ 7	40 - 70
Weight Increase %	≤ 18	≤ 13	≤ 14	40 - 75
ASTM Fuel B (5h / 20 °C)				
Thickness Increase %	≤ 10	≤ 10	≤ 10	25 - 40
Weight Increase %	≤ 18	≤ 13	≤ 15	25 - 50

Note: Gasket Sheet materials are available in standard dimensions (1500 x 2000 mm) and other thicknesses, sizes and inserts upon request.

EXCELLENT OIL RESISTANCE AND CONTROLLED SWELL MATERIAL. GOOD TENSILE STRENGTH AND STRESS RELAXATION

KLINGER® FIBRE-BASED AUTOMOTIVE GASKET MATERIALS





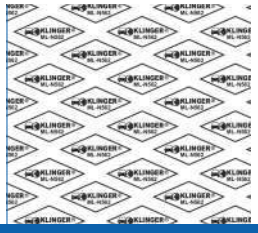

Material	KLINGER® AC 37.600	KLINGER® AG 330	KLINGER® AG 460	KLINGER® ML-5270
Basis	Aramid/NBR	Aramid/NBR/SBR	Aramid/NBR/SBR	Synthetic fiber and polychloroprene binder gasket material
Key Features	High conformability with good oil and fuel resistance	Swelling in oil and fuel, good micro surface sealing with swelling media.	Controlled swelling in oil and fuel, good gas sealability	Resistant to refrigerants and oil mixtures. Multi-Layer Technology provides exceptional low flange pressure sealability with exceptional torque retention.
Typical Applications	Valve cover, oil pan, gearbox, housing cover, water pump	Intake manifold, valve, housing cover, oil pan, timing case, water socket and pump	Intake manifold, valve, housing cover, oil pan, transmission, gearbox, water socket and pump	Gaskets in hermetic and semi-hermatic compressors and oil pan gaskets in heavy-duty diesel engines
Max Temperature °C	350	250	300	177
Max. Pressure Bar	25	40	50	55
Thickness mm	0.30 - 2.00	0.30 - 2.00	0.30 - 2.00	0.30 - 1.60
Density g/cm3	1.35 - 1.65	1.65	1.6	1.7
Compressibility ASTM F36 J %	10 - 16	10	10	8 - 14
Recovery ASTM F36 J %	> 50	45	50	min 40
Tensile Strength Cross-grain DIN 52910 Mpa	> 9	7	6	> 11
Stress Relaxation DIN 52913 50 Mpa, 16h/300°C Mpa	> 20	22 (200°C)	25	- -
Ignition Loss DIN 52911%	< 35	< 33	< 28	< 35
Fluid Resistance ASTM F 146				
Oil IRM 903 (5h / 150 °C)				
Thickness Increase %	≤ 10	≤ 20	≤ 15	max 30
Weight Increase %	≤ 20	≤ 20	≤ 20	
ASTM Fuel B (5h / 20 °C)				
Thickness Increase %	≤ 10	≤ 20	≤ 20	
Weight Increase %	≤ 20	≤ 20	≤ 20	max 15

Note: Gasket Sheet materials are available in standard dimensions (1500 x 2000 mm) and other thicknesses, sizes and inserts upon request.

EXCELLENT OIL RESISTANCE AND CONTROLLED SWELL MATERIAL. GOOD TENSILE STRENGTH AND STRESS RELAXATION

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KLINGER® FIBRE-BASED AUTOMOTIVE GASKET MATERIALS





Material	KLINGER® AC 37.600	KLINGER® AG 330
Basis	Aramid/NBR	Aramid/NBR/SBR
Key Features	High conformability with good oil and fuel resistance	Swelling in oil and fuel, good micro surface sealing with swelling media.
Typical Applications	Valve cover, oil pan, gearbox, housing cover, water pump	Intake manifold, valve, housing cover, oil pan, timing case, water socket and pump
Max Temperature °C	350	250
Max. Pressure Bar	25	40
Thickness mm	0.30 - 2.00	0.30 - 2.00
Density g/cm3	1.35 - 1.65	1.65
Compressibility ASTM F36 J %	10 - 16	10
Recovery ASTM F36 J %	> 50	45
Tensile Strength Cross-grain DIN 52910 Mpa	> 9	7
Stress Relaxation DIN 52913 50 Mpa, 16h/300°C Mpa	> 20	22 (200°C)
Ignition Loss DIN 52911%	< 35	< 33
Fluid Resistance ASTM F 146		
Oil IRM 903 (5h / 150 °C)		
Thickness Increase %	≤ 10	≤ 20
Weight Increase %	≤ 20	≤ 20
ASTM Fuel B (5h / 20 °C)		
Thickness Increase %	≤ 10	≤ 20
Weight Increase %	≤ 20	≤ 20

Note: Gasket Sheet materials are available in standard dimensions (1500 x 2000 mm) and other thicknesses, sizes and inserts upon request.

EXCELLENT OIL RESISTANCE AND CONTROLLED SWELL MATERIAL. GOOD TENSILE STRENGTH AND STRESS RELAXATION

KLINGER® GRAPHITE LAMINATE GASKET MATERIAL FOR AUTOMOTIVE APPLICATIONS

				
Material	**KLINGER® Graphite Laminate MLX**	**KLINGER® Graphite Laminate SLS**	**KLINGER® Graphite Laminate PSM**	**KLINGER® Graphite Laminate XSM**
Description	Suitable for demanding operating conditions, it comprises multiple graphite and steel layers bonded by means of an adhesive-free technology. Ensures max sealing performance. Features an anti-stick coating for improved handling.	Combines pure exfoliated graphite with stainless steel foil reinforcement, this gasket material promises improved cutting and handling. Suitable for low bolt-load and damaged flange scenarios.	KLINGER® Graphite Laminate PSM - the pure graphite gasket with rough sheet metal insert featuring adhesive-free bonding. It is free of resins, impregnations or other organic substances.	Glueless gasket material consisting of a special oxidation protected expanded graphite and a 0.1mm thick tanged stainless steel insert. Mainly used in the automotive industry as a result of its outstanding oxidation resistance.
Typical Application	Suitable for extreme conditions - high pressure & temperatures and high compressive stresses.	Resistant to virtually any medium, also temperature-resistant (up to 450°C) and highly compressible.	This gasket material is ideal for hot water and steam applications at temperatures of up to 450°C.	Especially suitable for high temperatures up to 550°C.
Basic Composition	Multi-layer structure consisting of 0.5 mm and 0.05 mm stainless steel foils.	Expanded graphite and a plain glued stainless steel insert.	Expanded graphite with a 0.1 mm thick insert of tanged stainless steel.	Flexible graphite foil with a tanged stainless steel insert.
Purity of Graphite (DIN 51903)	> 99	≥ 99.0	≥ 99.0	≥ 99.0
Max Temp °C	450	450	450	550
Max Pressure Bar	120	80	120	120
Density g/cm3	1.1	1.0	1.0	1.0
Compressibility %	ASTM F36 A 30 - 50	ASTM F36 A 35 - 50	ASTM F36 A 35 - 45	ASTM F36 J 25 - 35
Recovery %	ASTM F36 A 10 - 25	ASTM F36 A 10 - 15	ASTM F36 A 12 - 18	ASTM F36 J 15 - 20
Stress Relaxation DIN 52913 50 Mpa	- -	≥ 48	- -	≥ 46
Industry	General industry / Chemical / Oil & Gas / Energy / Pulp & Paper / Marine / Automotive	Automotive / General industry / Chemical / Oil & Gas / Energy / Pulp & Paper / Marine	General industry / Chemical / Oil & Gas / Energy / Pulp & Paper / Marine / Automotive	Mainly used in the automotive industry as a result of its outstanding oxidation resistance.
Certificates	DVGW	Fire Safe acc. to DIN EN ISO 10497, BAM tested	DIN-DVGW, KTW, Fire Safe acc. to DIN EN ISO 10497, DNV GL approval, BAM tested	DIN-DVGW
Sizes	1500 x 1500 mm	1000 x 1000 mm, 2000 x 1000 mm	1000 x 1000 mm, 1500 x 1500 mm, 2000 x 1500 mm	Sheets: 1000 x 1000 mm
Thickness	1.0 mm, 2.0 mm, 3.0 mm	0.6 mm, 0.8 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm	0.8 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm	Sheets: 1.0 mm, 1.5 mm, 2.0 mm

Note: Gasket Sheet materials are available in standard dimensions (1500 x 2000 mm) and other thicknesses, sizes and inserts upon request.

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KLINGER® MICA GASKET MATRERIAL FOR AUTOMOTIVE APPLICATIONS



Material	KLINGER® MILAM PSS
Description	An asbestos-free sealing material for high temperature applications – up to 900 °C and higher. MICA based material with perforated 0.1 mm thick stainless steel reinforcement made of 1.4401 or AISI 316. Outstanding thermal stability, chemical resistance, and oxidation resistance.
Typical Application	Exhaust applications up to 900°C. Preferred for exhaust pipes, turbines, turbochargers and fuel lines
Max Temp °C	900
Max Pressure Bar	40
Thickness mm	1.30 - 3.20
Density g/cm3	2.1
Compressibility ASTM F36 J %	13 - 19
Recovery ASTM F36 J	35 - 45
Tensile Strength Cross-grain DIN 52910 Mpa	20
Stress Relaxation DIN 52913 50 Mpa, 16h/300°C Mpa	33
Ignition Loss DIN 52911 %	<5
Fluid Resistance ASTM F146	
Oil IRM 903 5h/150°C	
Thickness inc. %	12
Weight inc. %	26
Industry	General industry / Chemical / Oil & Gas / Energy / Pulp & Paper / Marine / Automotive
Certificates	German Lloyd
Sheet Size	1000 x 1200 mm
Sheet Thickness	PSS 130 = 1.3 mm, PSS 200 = 2.0 mm, PSS 300 = 3.2 mm

Note: Gasket Sheet materials are available in standard dimensions (1500 x 2000 mm) and other thicknesses, sizes and inserts upon request.

KLINGER India

As a member of the globally active KLINGER Group, KLINGER India, headquartered in Bengaluru, combines the strength of international research and development with the flexibility of local manufacturing, warehousing, technical expertise, and support. We provide solutions to the broadest range of applications in many industries throughout the sub-continent.

KLINGER India Supports the Automotive industry

- Genuine KLINGER products – Gasket materials, CNAF gaskets, Graphite Gaskets for Exhaust application, Head gaskets and related products.
- Faster deliveries of an extensive list of genuine items enabled by local stocking.
- Extensive Testing facility at manufacturing locations
- Customized gaskets cut to your design and specifications.
- Safe, reliable, cost-effective solutions in compliance with international standards

Approvals

We are the industry's preferred partner for the production and development of high-quality soft sealing materials. KLINGER facilities are certified to the highest industry standards:

- EN ISO 9001, ISO 14001 certified
- Environmental management system acc. EMAS III regulation.
- Special Automotive certifications for products and locations
- Best in market certificates & approvals for all of our material.

KLINGER
trusted. worldwide.



KLINGER
India

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