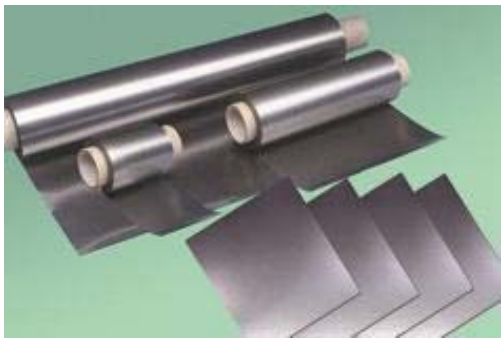
Nexus Seals

Working With People to Engineer Solutions

1100/1102

Pure Expanded Flexible Graphite Foil

Nexus Flexible Graphite Foil is a homogeneous material that contains no adhesives or binders. Even after long service periods, Nexus Flexible Graphite Foil displays no notable changes in its properties compared with other sealing materials. Inhibitors can be added to enhance the oxidation and corrosion resistance properties of the flexible graphite. Nexus Flexible Graphite Foil is also available with self-adhesive backing. For applications in stuffing box packing. Nexus Flexible Graphite Foil offers maximum protection against oxidation and thus ensures greater reliability and longer service life. Nexus Flexible Graphite Foi lis available in various dimensions and densities, and with a purity level of 99% up to 99.9%. Nexus Flexible Graphite Foil is supplied as standard in both roll and tape form.



The different Nexus Flexible Graphite Foil grades are as follows:	
Nexus 1100	Graphite Foil of industrial and automotive quality
Nexus 1100CI	Graphite Foil with conventional oxidation inhibitor
Nexus 1102	Graphite Foil of nuclear quality
Nexus 1102PAS	Graphite Foil of industrial /nuclear quality with self-adhesive
Nexus 1102CI	Graphite Foil of nuclear quality with oxidation inhibitor

Properties	
Flexible, soft	Impermeable to gases and liquids
High temperature resistant	Resistant to most media
Asbestos-free, presents no health hazard	No ageing or embrittlement because of absence of binders and fillers
Long-term stability of compressibility and recovery over a wide temperature range	No measurable cold or warm flow up maximum permissible gasket stress
Properties highly anisotropic, particularly in respect of electrical and thermal conductivity	Low coefficient of friction
Resistant to radiation	Very good resistance to thermal shock
Excellent residual stress	Easily machined by cutting or punching
Can be bonded using commercial adhesives	

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Material Data				
Foil grade	UoM	Nexus 1100	Nexus 1100CI	Nexus1102
Standard bulk density	g/cm3	0.7 - 1 .2		
Ash content	%	≤1	≤1.0	≤0.5
Chloride content	ppm	≤50	≤20	≤20
Foil thickness	mm	0.15 – 1.0		
Roll width	mm	500/1000/1500/2000		
Tape width	mm	≥4mm		
Roll length	m	25/50/75/100/300/500		

Technical data of Nexus 1100 Graphite Foil with bulk densities of 1.0 g/cc	
Purity	99%
Sulphur Content max. ASTM C-816	1000 ppm
Bulk Density	1.0 g/cc ASTM C-559
Ash Content ASTM C561	Less than 1% ASTM C561
Leachable Chloride	50 ppm max. ASTM D-512
Fluorides	50 ppm max. ASTM D-512
Temperature Range	-200°C to +3300°C Non-Oxid -200°C to +500°C Oxidizing -200°C to +650°C Steam
Tensile Strength	998 Psi
Stress Relaxation	DIN 52913-48 N/mm2
Shore Hardness (D)	30
Creep Relaxation	At 100°C ASTM F-38 <5%
Sealability ml/h fuel A	<0.2 to 0.5 ASTM F-37B
Electrical Resistance	900 x 10^{-6} ohm cm parallel to surface 250,000 x 10^{-6} ohm cm perpendicular to surface
Thermal Conductivity	120 Kcal/m Hr.°C parallel to surface 4 Kcal/m Hr.°C perpendicular to surface
Coefficient of Thermal Expansion	5 x 10^{-6} /°C parallel to surface 2 x 10-6 /°C perpendicular to surface
Ignition Loss	Less than 1% (450°/1Hr) Less then 20%(650°/1Hr)
Operating Pressure	140 bar (2058 p.s.i)
Resilient Rate	More than 30%
Compressibility	40 to 45 % ASTM F36A-66
Recovery	20 to 40 % ASTM F36A-66
ASTM “m” factor	2
ASTM “y” stress	1500 Psi
Sliding-Frictional Coefficient	0.149
Permeability Coefficient for air	Less than 10-5 cm2/sec perpendicular to surface
PH Range	0 to 14

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Nexus 1200 is made of expanded graphite foil without insertion. These compressed sheets are also used in manufacturing of exaded flexible graphite materials with stainless steel reinforcement. Nexus 1200 is used as a gasket material for low pressures and high temperature; also as a layering material for cam profile gaskets and as an insert material for PTFE-envelope gaskets.
Nexus 3002A is an expanded graphite foil laminate with one or more thin, flat stainless steel 316 insertion. It is used for high pressure and high temperature conditions. This material is found in many applications, in both chemical and petrochemical industries.
Nexus 3001A is expanded graphite foil reinforced with a single or more insertions of tanged 0.10mm thick 316 stainless steel. No adhesive is used to bond the graphite layers. This sheet is used frequently in flange connections for piping and machinery. It is extremely suitable for steam systems, in chemical and petrochemical industries, processing industry, etc.

Standard Sheet Size: 1000x1000mm, 1500x1500mm, 2000x2000mm. Other size upon request.

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Technical Properties	UoM	G 1200	G 3002A	G 3001A
Thickness	mm	2.0	2.0	2.0
Max temperature	°C	-200°C to +500°C oxid -200°C to +650°C steam	-200°C to +500°C oxid -200°C to +650°C steam	-200°C to +500°C oxid -200°C to +650°C steam
Max pressure	bar	40	140	140
Density	g/cm³	1.1	1.1	1.1
Ash content DIN 51 903	%	≤1.0	≤1.0	≤1.0
Leachable chloride content	ppm	≤50	≤50	≤50
Material of insertion DIN/ASTM	-	-	1.4401/SS316(flat)	1.4401/SS316(tanged)
Thickness of insertion	mm	-	0.05	0.1
No. of inserts	-	1	2	1
Gas permeability	cm²/min	0.80	≤0.60	<0.8
Spec. leak pate	mg/s/m	<0.1	-	-
Stress relaxation DIN 52 913,16h/300°C	N/mm²	>47	≥45	>48
Compressibility ASTM ASTM F 36A-66	%	40-50	40-50	30-35 30-40
Recovery ASTM ASTM F 36A-66	%	10-15	10-15	15-20
Min. gasket assembly stress	N/mm²	20	10	20
M DIN factor DIN Factor		1.3	1.3	1.3
Max. permissible gasket stress	N/mm²	120	100	140
Max. permissible gasket stress (Under service conditions)	N/mm²	100	60	120
M ASTM Factor		2	2	2.5
Y ASTM Factor	psi	1500	900	4000

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Nexus Style	Product
G1200	Pure Graphite Gasket
G1HDA	Multi-Layered Graphite and 304 S/S High Pressure Gasket
G1HDB	Multi-Layered Graphite and 304 S/S High Pressure Gasket
G1TCA	Graphite Gasket with Expanded 316 S/S Metal Reinforcement
G1TCB	Graphite Gasket with Expanded 304 S/S Metal Reinforcement
G1001A	Graphite Gasket with Tanged 316 S/S
G1001B	Graphite Gasket with Tanged 304 S/S
G1001C	Graphite Gasket with Tanged Nickel
G1002A	Graphite Gasket with Flat 316 S/S
G1002B	Graphite Gasket with Flat 304 S/S
G1002C	Graphite Gasket with Nickel Foil
G1002D	Graphite Gasket with Aluminium Foil
G1003A	Graphite Gasket with 316 S/S Mesh
G1003B	Graphite Gasket with 304 S/S Mesh
G1003D	Graphite Gasket with Glas Mesh
G1004	Graphite Gasket with Tanged Galvanised Sheet
G1005	Graphite Gasket with Polyester Re-Inforcement
G1101A	Graphite Cut Gasket with Tanged 316 S/S
G1101B	Graphite Cut Gasket with Tanged 304 S/S
G1101C	Graphite Cut Gasket with Tanged Nickel
G1102A	Graphite Cut Gasket with Flat 316 S/S
G1102B	Graphite Cut Gasket with Flat 304 S/S
G1102C	Graphite Cut Gasket with Nickel Foil
G1103A	Graphite Cut Gasket with 316 S/S Mesh
G1103B	Graphite Cut Gasket with 304 S/S Mesh
G1103C	Graphite Cut Gasket with Glass Mesh
G5010	Super CAF Compressed Asb. Fibre Gasket Sheet
G5010W	Super CAF Compressed Asb. Fibre Gasket with Wire
G5011	Super CAF Compressed Asb. Fibre Gasket
G5011W	Super CAF Cut Gasket with wire reinforcement
G5040	CAF compressed Asb. Fibre Gasket Sheet - General Purpose
G5041	CAF compressed Asb. Fibre Cut Gasket - General Purpose
G5130	Premium Graphite Non-Asbestos
G5210	Super Carbon Gasket with NBR binder
G5210W	Super Carbon Gasket with NBR binder & Wire
G5211	Super Carbon Cut Gasket with NBR Binder
G5211	Super Carbon Cut Gasket with NBR Binder & Wire
G5230	Non-Asbestos Gasket with NBR binder - General Purpose
G5231	Non-Asbestos Cut Gasket with NBR Binder - General Purpose
G6000	Pure PTFE Sheet
G6001	PTFE Cut Gasket
G6018	PTFE & NBR Envelope Gasket