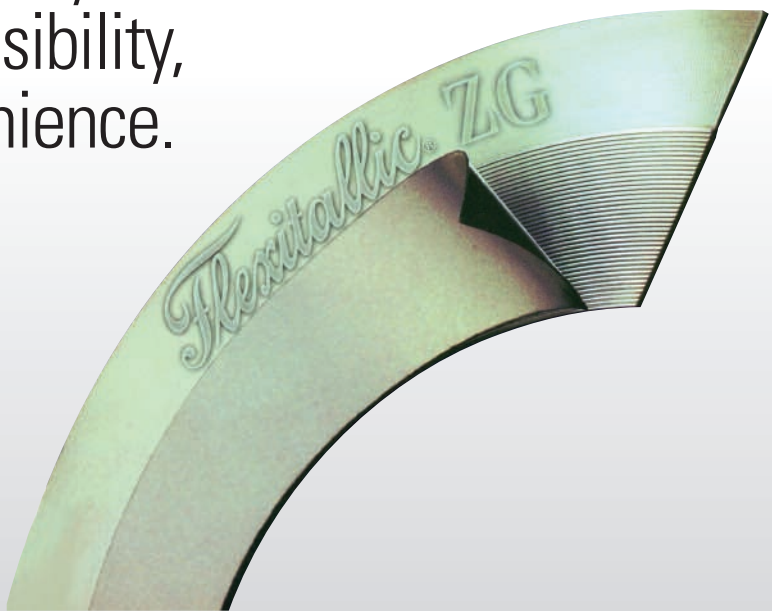
Flexitallic®

FLEXPRO™ KAMMPROFILES

Flexpro™- The versatile gasket with three key features: compressibility, low stress, convenience.



Flexitallic®

FLEXITALLIC

The Flexitallic Group is the international market leader in the manufacture and supply of high quality, high value industrial static sealing products, delivering industrial gaskets on a global scale.

About us

As the developer of the spiral wound gasket in 1912, we have built on this legacy of innovation with revolutionary products including Thermiculite® and Sigma®, The Flange Rescue Gasket winner of the NACE and Dupont Plunkett Awards, and most recently the Change™ Gasket, set to transform the global sealing industry.

We have a global network of Allied Distributors across 30 countries. This ensures local demand is met quickly, providing a combination of the highest product quality and outstanding customer service.

Our extensive and varied product offering includes spiral wound gaskets, RTJ gaskets, Flexpro™ Kammprofiles, sheet materials, dynamic and static packings, pipe support and custom rubber products. Drawing upon the group's rich history and present day values of leadership, quality, service and technology, we are at the forefront of developing sealing solutions for industries around the world.

In addition to a wide range of products, we also deliver world-class technical support and Joint Integrity training.

Based on sales and geographic reach, the Flexitallic Group has become *the* global supplier of industrial gaskets.

Innovative Product Range
We have a rich history of innovation, which has seen us lead the industry with many new products.

Over the years, our products have gained a reputation for quality, reliability and technology that is second to none.

Customised Engineering Solutions
Our Application Engineering, Production Engineering and R&D teams work closely together to design, develop and manufacture bespoke sealing solutions.

We have been responsible for a number of truly revolutionary products, including Thermiculite®, Sigma® and the Flange Rescue Gasket, which ensure we are able to continually meet the ever more stringent requirements of our customers.

Flexitallic® Safe
Over the last century, our aggressive R&D efforts have helped customers become Flexitallic® Safe. From the first Spiral Wound Gasket in 1912 to the ever evolving applications for Thermiculite®, our goal is to develop materials that push the parameters of heat, pressure and chemical resistance.

Our Commitment to Quality
We place great emphasis on maintaining international quality standards, and are approved to ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007, API 6A and API 17D, to ensure we meet the highest possible standards for all our products and services.

We also invest heavily in test and quality assurance equipment to maintain our reputation for the highest quality products.

Our materials are subjected to a wide range of tests as specified by statutory regulations and customer requirements. These approvals enable our customers to make informed choices as to the suitability of a product for each and every application.

Inside Industry
We pride ourselves on not simply supplying products, but by supporting customers with a detailed knowledge of their industry and applications, so that products and services are tailored to their specific needs.

This unique approach means that we focus on providing more than just a product, but also a complete solution that adds genuine value to our clients.

Global Distribution... Local Support
Our products are distributed through a global network of Allied Distributors.

These carefully selected distribution partners are strategically located within their territory to deliver the best possible service and products to our customers. This approach means our products and know-how are available to the global industries we service.

Allied Distributor

Licensee Manufacturer

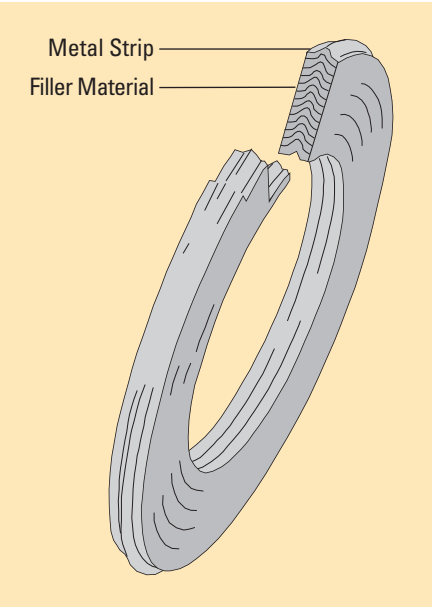
SPIRAL WOUND GASKETS

Driven by the industry's need for safe, effective sealing solutions for increasingly demanding applications, Flexitallic invented the spiral wound gasket in 1912.

First and Foremost

The concept of spiral wound gasket construction was originated by Flexitallic in 1912, starting a new era in safe, effective sealing. The primary purpose for this development was the increasingly severe temperatures and pressures used by U.S. refinery operators in the first half of the 20th century.

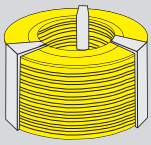
The necessity for a gasket to have the ability to recover cannot be over emphasised. The effects of pressure and temperature fluctuations, the temperature differential across the flange face, together with bolt stress relaxation and creep, demand a gasket with adequate flexibility and recovery to maintain a seal even under these varying service conditions. The Flexitallic Spiral Wound Gasket is the precision engineered solution to such problems, meeting the most exacting conditions of both temperature and pressure in flanged joints and similar assemblies and against virtually every known corrosive and toxic media.

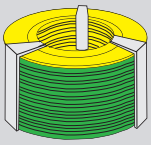


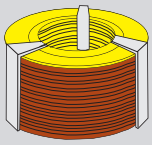
GASKET IDENTIFICATION

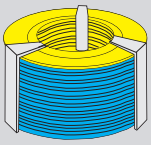
Gaskets are colour coded to help expedite the selection and identity of the gaskets you need. The colour on the outside edge of the centering ring identifies both the winding and filler materials. The metallic winding material is designated by a solid colour. The filler materials are designated by colour stripes at equal intervals on the outside edge of the centering ring. Flexitallic colour coding meets the industry standard for metal and filler materials listed in ASME B16.20.

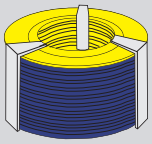
Metallic Winding Materials
The metallic winding material is designated by a solid colour identification around the outside edge of the centering ring.

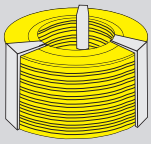

304SS
Yellow

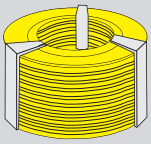

316LSS
Green


317L
Maroon


321SS
Turquoise


347SS
Blue


310SS
No colour


304LSS
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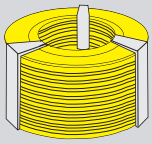
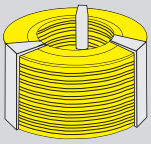
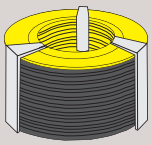
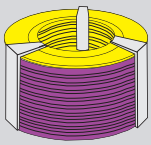
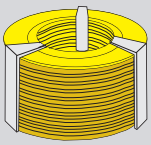
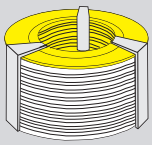

309SS
No colour

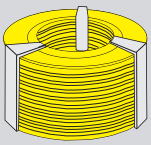

430SS
No colour

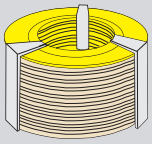

Alloy 20
Black

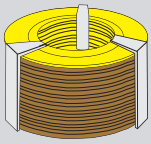

Titanium®
Purple

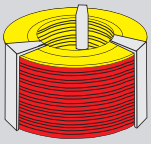

Inconel® 600/625
Gold

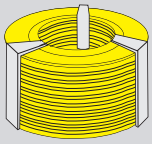

Incoloy® 800/825
White

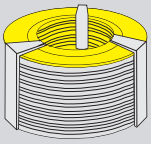

Inconel® X750
No Colour

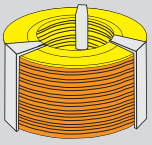

Hastelloy® C276
Beige

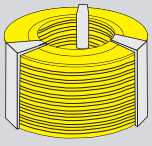

Hastelloy® B2
Brown


Nickel 200
Red

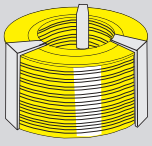

Zirconium
No colour

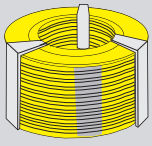

Carbon Steel
Silver

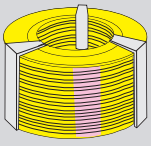

Monel®
Orange

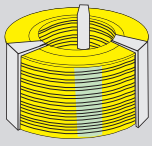

Duplex
No colour

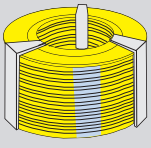
Non Metallic Fillers
The gasket filler materials are designated by a number of stripes placed at equal intervals around the outside edge of the centering ring.


PTFE
White Stripe


Flexicarb®
Gray Stripe


Flexite Super®
Pink Stripe


Ceramic
Light Green Stripe


Thermiculite® 835
Light Blue Stripe

GASKET MATERIALS

METAL WINDING STRIP AS STANDARD	
Stainless Steel	304
	316L
OTHERS	
Stainless Steel	304L
	310
	316Ti
	317L
	321
	347
	430
	17-7PH
Alloy 20	
Monel®	
Titanium®	
Nickel® 200	
Inconel®	600
	625
	X-750
Hastelloy®	B2
	C276
Incoloy®	800
	825
Duplex	
Zirconium®	
Tantalum®	

FILLER MATERIAL
Flexicarb® flexible graphite
Thermiculite® 835
Flexite Super®
PTFE
Ceramic
Non-sintered PTFE

Thermiculite®, FLEXITALLIC'S proprietary high-temperature, sealing material is comprised of chemically exfoliated and thermally exfoliated vermiculite.

This revolutionary patented product simulates the structure of exfoliated graphite but with one notable exception... gaskets made with Thermiculite® maintain their integrity, even at extreme temperatures.

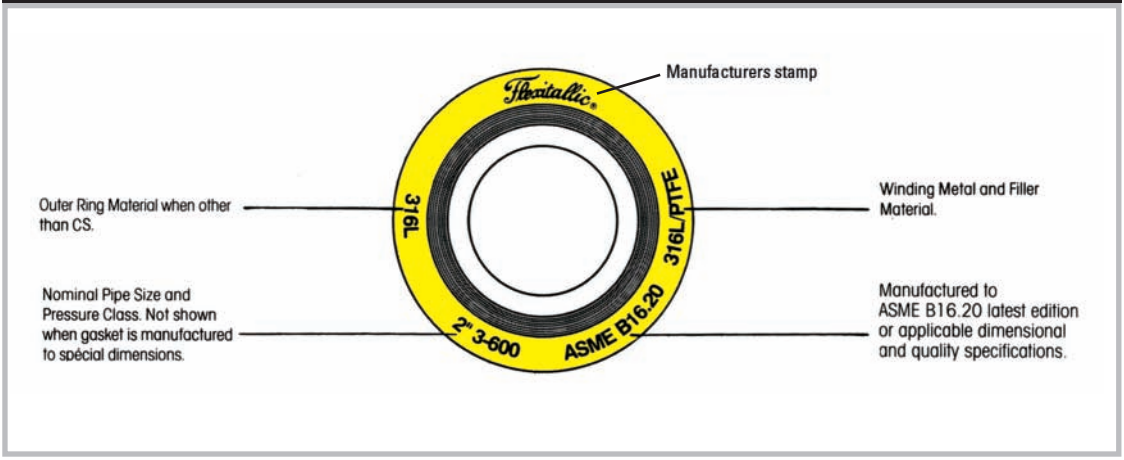
Thermiculite® is thermally stable, ensuring against thermal oxidation, at temperatures in excess of 1000°C (Thermiculite® 835).

GUIDE RING MATERIAL AS STANDARD	
Carbon Steel	
OTHERS	
Stainless Steel	304
	304L
	316
	316L
	316Ti
	310
	321
	347
	410
Inconel®	600
	625
Monel®	
Titanium®	
Nickel®	
Incoloy®	800
	825
Alloy 20	
Hastelloy®	B2
	C276

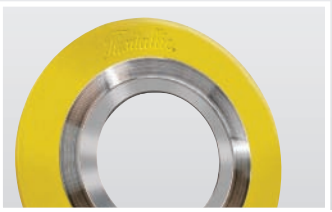
NOTES

Figures stated are for information only. Please refer to the current version of the original standards for dimensional information.
Selected materials should be compatible with operating temperature and chemicals. If in doubt, contact Flexitallic Technical Department.
We recommend a max continuous operating temperature of 260°C, above this decomposition starts to occur slowly, increasing rapidly above 400°C (750°C)

IDENTIFICATION REQUIREMENTS



GASKET SELECTION

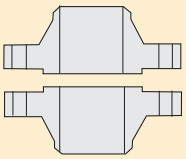
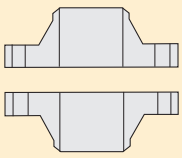
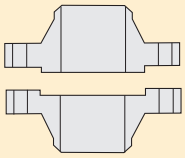
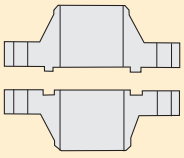
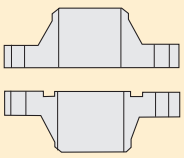
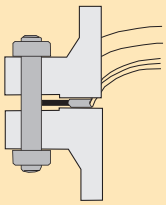
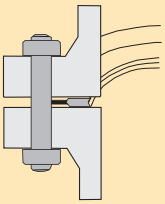
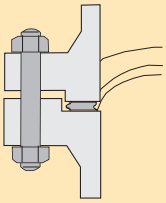
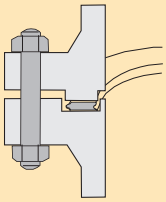
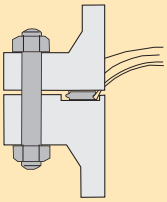
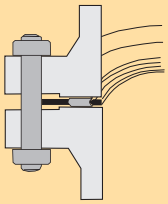
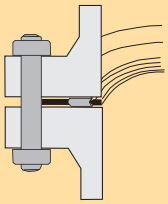
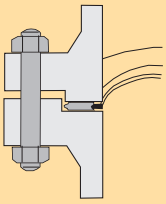
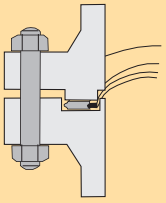
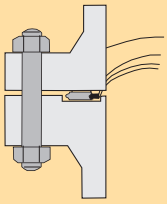
Style CG – Is comprised of a sealing element and outer metal ring. The outer ring assists in locating the gasket on the mating flange faces and prevents over compression of the sealing element ensuring optimum sealing performance. Style CG gaskets are suitable for use on raised and flat faced flanged connections. Style CG gaskets are suitable for use in mild to moderate service conditions.

Style CGI – In addition to an outer metal ring the CGI style gasket is fitted with an inner metal ring, constraining the sealing element on both internal and external diameters. The inner ring functions as an additional compression stop and prevents inner buckling of the sealing element. It also creates a physical barrier between the sealing element and process stream shielding from heat and media while preventing erosion. Style CGI gaskets are suitable for use on raised and flat faced flanged connections and moderate to severe service conditions.

Style R – Is comprised of a sealing element, additional plies of metal are used at the start and termination of the winding process improving stability and sealing performance. Unlike other styles of spiral wound gasket compression of the sealing element is controlled by the use of the correct flange face configuration, style R gaskets are suitable for use on tongue and groove, male and female and flat to groove flanged connections.

Style RIR – Is comprised of a sealing element and inner metal ring. The inner ring functions as both a compression stop and creates a physical barrier between the sealing element and media stream. The inner ring is also designed to reduce turbulent flow, minimising flange erosion and prevents the build up debris in the annular space between the pipe bore and internal diameter of the gasket. Style RIR gaskets are suitable for use on male and female (spigot and recess) flanged connections.

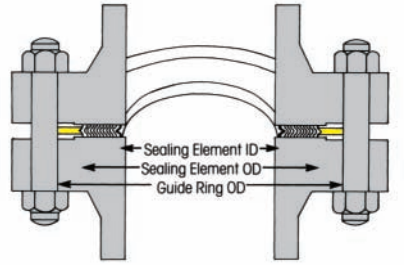
Published as an indication of which Flexitallic spiral wound gasket best suits different pipe flange configurations and service conditions.

SELECTION GUIDE					
Flange Face	 Raised Face	 Flat Face	 Male and Female	 Tongue and Groove	 Flat Face to Recess
Recommended Gasket Style For general duties	 Style CG	 Style CG	 Style R	 Style R	 Style R
Recommended Gasket Style For high pressure/ temperature duty, also for gaskets with PTFE filler, corrosive or fluctuating pressure or temperature service conditions.	 Style CGI	 Style CGI	 Style RIR	 Style RIR	 Style RIR

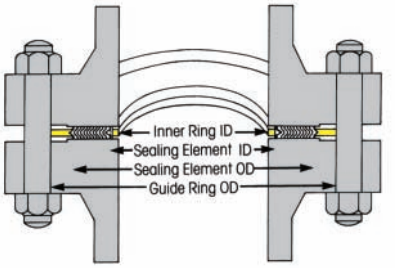
NOTES: Where style R gaskets are fitted it is essential that the flange is correctly dimensioned to provide a compression stop, as over compression can result in failure.

STYLE CG & CGI GASKETS

Style CG



Style CGI



To suit standard raised face and flat face flanges.

All CG and CGI Gaskets for these standard flanges are 0.175 in (4.5mm) thick, fitted with 0.125 in (3.2mm) thick solid metal rings, unless otherwise stated.

Special gaskets

Gaskets of special design can be engineered and fabricated using the same basic fundamentals of Flexitallic Spiral Wound Gasket design and construction to cover a wide range of applications in installations for which there are no industry-wide standards. Special gaskets have been designed for valves, pumps, compressors, turbines, boilers, heat exchangers, etc. Consult with Flexitallic engineers as early in the design stage as possible.

Low Emission style Gaskets are available, which conform to major oil refinery requirements in accordance with CFET March 2013 revision. Please speak to the Applications Engineering Department for further information.

Flexitallic style CG and CGI Spiral Wound Gaskets can be manufactured in accordance with all relevant gasket standards to suit the following flange designations.

Please note that gaskets for non-standard flanges are also readily available.

ASME B16.5
ASME B16.47 Series A (MSS SP 44)
ASME B16.47 Series B (API 605)
BS 10
BS 1560
BS 4504
BS EN 1092
BS EN 1759
DIN Flanges
JIS Flanges

WHEN ORDERING PLEASE SPECIFY	EXAMPLE
Gasket style	Flexitallic Style “CGI” Spiral Wound Gasket
Nominal pipe size (NPS)	4”
Pressure rating	Class 900
Gasket standard	ASME B16.20
Winding materials	316L/Flexicarb (FG)
Outer ring material	Carbon Steel
Inner ring material	316L

Flexitallic

novus™ a Flexitallic brand

Data / Specification Sheet • Novus 10

Novus 10 is a premium grade compressed sheet material based on carbon fibre with a high quality nitrile rubber binder system.

Service

A universal grade especially suitable for use under alkaline conditions with good steam resistance. It also possesses excellent creep resistance and is suitable for use with oils, fuels and refrigerants.

Approvals / Compliance

BS Specification 7531 Grade X

API 607 Fire Safe

TA-LUFT (in accordance with VDI Guideline 2440)

GL Approval 37702 - 12HH

Availability

Thickness range:
0.4mm to 6.0mm

Standard sheet sizes:
2.0m x 2.0m
2.0m x 1.5m
1.5m x 1.5m
1.5m x 1.0m

Standard roll sizes:
Up to a maximum size of 6.0m x 2.0m

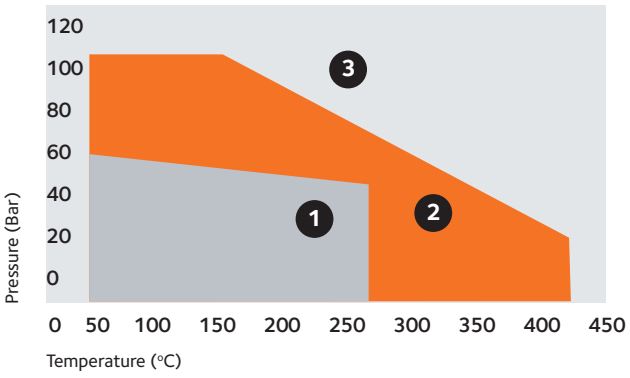
Available with a fine mesh mild steel reinforcement: Novus 10 Metallic, can also be supplied with anti-stick finish.

Supplied as standard with anti-stick coating, can also be supplied with graphite coating.

Physical properties

Thickness		1.5mm
Density		1.57g/cc
Tensile Strength	ASTM F152	13MPa
Compression	ASTM F36	11%
Recovery	ASTM F36	62% min
Residual Stress	BS 7531 (300°C)	25MPa
Gas Leakage	BS 7531	<1cc/min
ASTM Oil 1	Thickness increase	1.0%
IRM 903 Oil	Thickness increase	2.5%
ASTM Fuel B	Thickness increase	2.5%

Novus 10 Pressure/Temperature Limits



1. Suitable subject to chemical compatibility.
2. Suitable in some cases but check your application requirements with Flexitallic.
3. Contact the Technical Team for applicatis on with higher temperatures and pressures. Applicable to 1.5mm and below.

The operating temperature of non-asbestos sheet material is related to the thickness of materials selected. Thinner materials give better temperature and pressure properties.

Flexitallic®

novus™ a Flexitallic brand

Data / Specification Sheet • Novus 30

Novus 30 is a good quality compressed sheet material based on a blend of aramid and inorganic fibres with a nitrile rubber binder system.

Service

Novus 30 is a general purpose material suitable for use in a wide range of applications, including hot and cold water, steam, oils, fuels, gases and a wide range of general chemicals.

Approvals / Compliance

WRAS Potable Water:
Registration No. 1510515

Complies with BS Specification 7531 Grade Y

TA-LUFT (in accordance with VDI Guideline 2440)

GL Approval 37702 - 12HH

Availability

Thickness range:
0.4mm to 6.0mm

Standard sheet sizes:
2.0m x 2.0m
2.0m x 1.5m
2.0m x 1.0m
1.5m x 1.5m
1.5m x 1.0m

Standard roll sizes:
Up to a maximum size of 6.0m x 2.0m

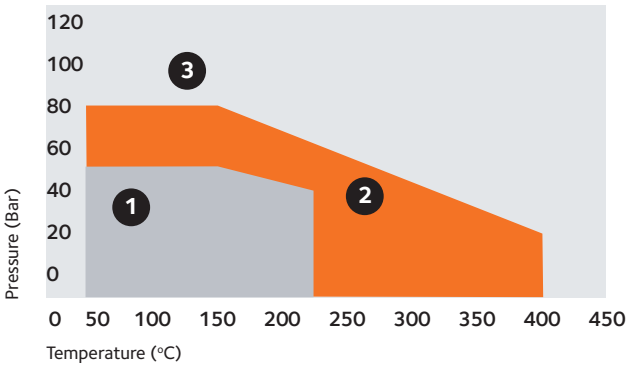
Available with fine mesh mild steel reinforcement: Novus 30 Metallic or gauze mild steel wire reinforcement: Novus 30 GWI.

It can also be supplied with anti-stick coating and graphite coating.

Physical properties

Thickness		1.5mm
Density		2.0g/cc
Tensile Strength	ASTM F152	12MPa
Compression	ASTM F36	9%
Recovery	ASTM F36	50% min
Residual Stress	BS 7531 (300°C) DIN 52913	23MPa 29MPa
Gas Leakage	BS 7531	<1.0cc/min
ASTM Oil 1	Thickness increase	2.0%
IRM 903 Oil	Thickness increase	5.0%
ASTM Fuel B	Thickness increase	4.0%

Novus 30 Pressure/Temperature Limits



1. Suitable subject to chemical compatibility.
2. Suitable in some cases but check your application requirements with Flexitallic.
3. Contact the Technical Team for applications with higher temperatures and pressures. Applicable to 1.5mm and below.

The operating temperature of non-asbestos sheet material is related to the thickness of materials selected. Thinner materials give better temperature and pressure properties.

Flexitallic®

novus™ a Flexitallic brand

Data / Specification Sheet • Novus 31

Novus 31 is a medium quality cost effective compressed non-asbestos sheet material, based on a blend of aramid and inorganic fibre with a high quality nitrile binder system.

Service

Novus 31 is a general purpose material suitable for use with oils, solvents, gases, hot and cold water, low pressure steam and many dilute acids and alkalis.

The operating temperature for non-asbestos sheet material is related to the thickness of the materials selected. Thinner materials offer better temperature and pressure properties.

Approvals / Compliance

GL Approval 37702 - 12HH

Availability

Thickness range:
0.4mm to 3.2mm

Standard sheet sizes:
2.0m x 2.0m
2.0m x 1.5m
2.0m x 1.0m
1.5m x 1.5m
1.5m x 1.0m

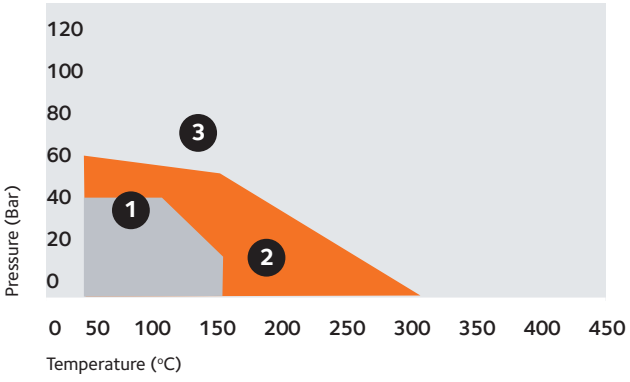
Standard roll sizes:
Up to a maximum size of 6.0m x 2.0m

It can also be supplied with anti-stick coating and graphite coating.

Physical properties

Thickness		1.5mm
Density		2.0g/cc
Tensile Strength	ASTM F152	8MPa
Compression	ASTM F36	>6%
Recovery	ASTM F36	>50% min
Residual Stress	BS 7531 (300°C) DIN 52913	15MPa 50MPa
Gas Leakage	BS 7531	<1.0cc/min
ASTM Oil 1	Thickness increase	1.0%
ASTM Oil 3	Thickness increase	4.0%
ASTM Fuel B	Thickness increase	4.0%

Novus 31 Pressure/Temperature Limits



1. Suitable subject to chemical compatibility.
2. Suitable in some cases but check your application requirements with Flexitallic.
3. Contact the Technical Team for applications with higher temperatures and pressures. Applicable to 1.5mm and below.

The operating temperature of non-asbestos sheet material is related to the thickness of materials selected. Thinner materials give better temperature and pressure properties.