

VULCAN® TEFCAN® EXPANDED PTFE GASKETING

VULCAN



Embrace Excellence - Vulcan Service, Quality and Value



VULCAN TEFCAN

MATERIAL PROPERTIES

Tefcan is made of 100% pure PTFE, expanded via a unique process into a consistent, highly fibrillated structure.

Upon compression, the fibrils lock together to form a strong, uniform material that is impervious to gases and liquids.

The material is unaffected by virtually all media and is incredibly resistant to creep, relaxation and cold flow, which are inherent in other gasket materials, especially virgin or filled PTFE.

The compression characteristics of Tefcan are very different to those of regular PTFE. In all of its forms it is flexible and stable, producing a tough, inert and long-lasting gasket.

It seals even under extreme temperatures, pressures and against corrosive media, where conventional materials would break down.

Even during application, it maintains its inherent high tensile strength and structural integrity that prevents relaxation and cold flow.

Operating throughout the pH range, resistant to thermal cycling, non-contaminating and FDA suitable, Tefcan materials can be used in any industry, sealing the simplest to the most difficult of gasket applications.

Flanges sealed with conventional gasketing materials are responsible for the majority of fugitive industry emissions. Meeting environmental regulations and reducing product loss requires a significantly lower amount of this discharge.

Tefcan provides an extremely tight and secure seal for controlling emissions and is suitable for use on a plant-wide basis.

The use of Tefcan material throughout your plant will significantly reduce inventories and costs whilst maximising gasket performance, reliability and life.

SERVICE LIMITS

Gasket Temperature:	-240°C to +310°C (-450°F to +600°F)
Internal Pressure:	Full vacuum to 3,000 psi
Media pH Value:	0 - 14 except for molten-alkali metals and elemental fluorine

TEFCAN RANGE

Tefcan material is extremely versatile and available in various types, forms and shapes.

UNIVERSAL JOINT SEALANT

Expanded PTFE in cord form with a self-adhesive backing strip for ease of installation. It is a superior and cost-effective alternative to standard gasket sheeting. Ideal for complex or large gaskets and for resealing damaged, worn or distorted flanges.

SHEET GASKETING

PTFE in a pure expanded form that resists cold flow. Flexible and economical, it is fast and easy to cut and install. Supplied as pre-cut gaskets or in sheet form to cut on site as required.

GASKET TAPE

Flat gasketing material for applications requiring a strip or full-face gasket. Combines the benefits of Tefcan joint sealant and sheet gasketing to offer flat-sheet, strip gasketing with minimal waste. Adhesive-backed for ease of installation.

VESSEL LID SEAL

Thick, conformable, flange gasketing tape of pure expanded PTFE. Specially designed for large lid or cover seals, particularly those with uneven or damaged surfaces, or that require easy compression of the gasket.

SPECIAL SHAPES

In addition to the standard oval section, Tefcan joint sealant is also available in square, rectangular, round and V-shaped forms.

This allows for creating a gasket on all kinds of flanges or sealing surfaces that have particular configurations, slots, grooves or special requirements.

Tefcan may also be constructed in a rigid and insertable gasket form for sealing plain or raised-face flanges in pipelines.



TEFCAN JOINT SEALANT

JOINT SEALANT

Tefcan universal joint sealant is supplied in a continuous cord with an adhesive back. Made from 100% expanded PTFE, it is highly compressible with excellent sealability. This unique sealant conforms to irregular shapes and surfaces. Compressing into a thin, wide ribbon, it produces a tough, long-lasting gasket, sealing against extreme temperatures, pressures and corrosive media.

SUPERIOR PERFORMANCE

The exceptional properties of PTFE, combined with the unique nature of its expanded form, contribute to the long life of seals made with this sealant. PTFE is unaffected by virtually all chemicals and corrosive environments. Tefcan will not contaminate flow products nor deteriorate with age.

The structural integrity of this material under compression allows for its use from -240°C to +310°C, under pressures from a vacuum up to 3,000 psi, against virtually all media.

Non-brittle even when very cold at cryogenic extremes, Tefcan joint sealant is a cost-effective, superior alternative to special sealants typically specified for cryogenic applications. Unlike conventional, non-expanded PTFE, it does not exhibit cold flow problems under sustained loads.

The result is a very thin, wide contour-hugging gasket with minimal area exposed to the enclosed media. Once bolted up, Tefcan joints remain leak tight and rarely need to be retorqued, and so troubleshooting is simplified.

COST AND TIME SAVING

You simply cut off what you need without any waste nor scrap. This saves on costs by reducing inventories and delays and by increasing seal life and reliability. This sealant is so versatile, it is suitable for use in virtually any industry as a cost-effective and superior gasketing solution.

SIMPLE TO INSTALL

Tefcan joint sealant is designed to be easy to handle and install, reducing time and labour costs. It requires only a minimum of flange preparation and is readily held in position on vertical, overhead or awkward surfaces by its self-adhesive strip.

Tefcan is so soft and flexible that it easily follows irregular surfaces, turns corners and pushes into narrow openings. The cord's great pliability allows it to be quickly formed into complex shapes. A seal is completed by simply crossing the two ends, preferably in line with a bolt hole. There is no time consuming cutting to shape and no waste.

MINIMISES DOWNTIME

Replacement gaskets using Tefcan joint sealant are immediately available, meaning no delay while conventional gaskets are cut and they are also stronger and longer lasting. It can be swiftly formed into any shape and requires relatively low bolting pressures.

Tefcan will not cause pitting of flanges and peels off after use. Gasket sealing therefore is simplified, faster and enhanced. As a result, periods between maintenance can be extended and actual down time is reduced.

REDUCES INVENTORY

Your complete gasketing stock can usually be replaced with just four cord sizes from across the range to seal any gasket application on your plant.

Compact in size with unlimited shelf life, this sealant's stocking costs are low and inventory savings on custom-made gaskets, such as 'O'-Rings and envelopes, can be substantial.

This sealant will even seal large diameters for which costly and jointed conventional gaskets are difficult to cut, transport, stock, handle and install.





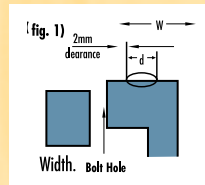
TEFCAN JOINT SEALANT

SIZE SELECTION

As Tefcan universal joint sealant compresses to form a thin, wide gasket taking up surface flaws, size selection is usually not critical. However, the following guidelines will help you obtain maximum results from this sealant for most applications.

1. For general flange surfaces, select a size of joint sealant with a nominal width diameter (**d**) of approximately 1/3 of gasket contact area (**W**). (**fig.1**)

The gasket contact area (**W**) is the distance from the ID of flange surface to the inside of the bolt hole, not the full flange.



2. For rough surfaces, select a size with a nominal width (**d**) that is approximately 1/2 of the gasket contact area (**W**). On scored surfaces, overlap sealant at the location of the score, or lay in an extra piece to double-up the material.

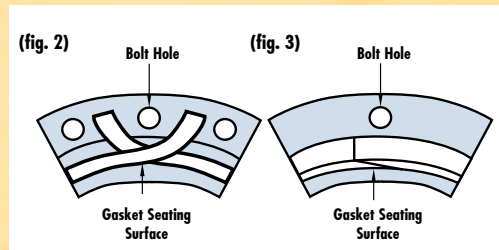
3. For flanges with narrow gasket contact surfaces, especially 7mm and below, a full width gasket can normally be used, if desired.

Normal Size		Spool Length
Width	Thickness	
3mm (1/8")	1.5mm	30 metres
5mm (3/16")	2.0mm	25 metres
7mm (1/4")	2.5mm	15 metres
10mm (3/8")	3.0mm	10 metres
14mm (1/2")	5.0mm	5 metres
17mm (5/8")	6.0mm	5 metres
20mm (3/4")	7.0mm	5 metres

INSTALLATION INSTRUCTIONS

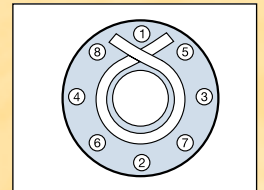
1. Clean both flange surfaces of all old gasket material. Remove any oil with a solvent so that the joint sealant's adhesive strip will adhere properly.

2. Peel off some of the protective tape from the adhesive strip and install by pressing the sealant into position around the flange profile. Continue peeling off the protective tape as the sealant is applied.



3. Overlap the ends of the sealant to complete the seal (**fig. 2**). On fragile flanges with low clamping forces, use an angled cut joint 1-2 times the seal's width (**fig. 3**).

4. Tighten the bolts evenly in a diagonally-opposite pattern to compress the joint sealant into a thin wide ribbon (**fig. 4**). In most cases, Tefcan universal joint sealant cannot be over tightened.



5. Very occasionally some spools may contain a splice covered with adhesive tape. If found, cut out the splice, and continue the gasket by overlapping the two ends for approximately 12 mm.

6. Either **a**) compress the joint sealant to the final gasket compressed thickness, as shown in table (where the available bolt loadings are known to be adequate) or **b**) where torque adjustable spanners are available, use the recommended clamping force per length of seal also shown in table or **c**) torque bolts to the load used with the previous gasket material and the Tefcan will seal.

Nominal Width		Compressed Thickness (Imperial)		Recommended Clamping Force Per Length of Seal (lb/inch)		
mm	inch	Water Tight (1)	Gas Tight (2)	Water Tight (1)	Gas Tight (2)	Rough Surfaces Gas Tight (3)
3	1/8	0.015"	0.010"	250	500	No Seal
5	3/16	0.019"	0.015"	250	850	No Seal
7	1/4	0.023"	0.018"	275	1150	2500
10	3/8	0.038"	0.023"	275	1500	2650
14	1/2	0.050"	0.030"	275	1550	2850
17	5/8	0.066"	0.040"	300	1650	2850
20	3/4	0.100"	0.050"	300	1950	2900

Note: (1) Water at 300 psi internal pressure
 (2) Gas at 600 psi internal pressure
 (3) Gas at 600 psi internal pressure where surface flaws are deeper than 80 micron

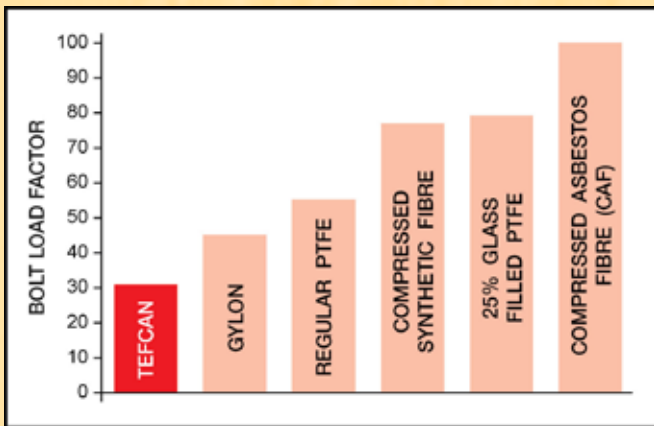


TEFCAN SHEET GASKETING

PRODUCT INFORMATION

Tefcan sheet gasketing is manufactured from 100% expanded PTFE drawn into a homogeneous sheet of uniform thickness. Unlike conventional gasketing materials, there are no elastomeric binders or fillers to deteriorate under constant elevated temperature and pressure.

Pliable and conformable, this advanced gasketing material readily fills surface irregularities, and seals scored or uneven flanges, without much increase in necessary bolt load. This exceptional ability of this material to seal can be seen from the following material comparisons:



Tefcan requires less than 1/3 of bolt load required by CAF to seal when tested at 30 psi gas on a rough surface flange.

Once installed, the expanded PTFE sheeting compresses to around 30% of its original thickness to leave a solid uniform gasket.

Due to its unique, highly fibrillated structure which gives multi-directional and high tensile strength, Tefcan sheeting is extremely resistant to creep, relaxation and cold flow, unlike standard PTFE.

SUPERIOR SEALABILITY

This expanded PTFE sheet gasketing is tremendously versatile, capable of near universal application and seals easily, tightly and securely for the lifetime of the joint.

The self-moulding and high conformability of this sheet gasketing also allows it to seal distorted or damaged flanges. The effective service life of these flanges is therefore increased tremendously, particularly since Tefcan does not cause pitting and will not stick nor bake to the flange surfaces.

Tefcan sheet gasketing can withstand the full pH range, pressures from vacuum up to 3,000 psi and temperatures from -240°C to 310°C - remaining non-brittle even at cryogenic states.

EASIER TO USE TEFCAN

Tefcan sheeting is soft and flexible, making it easy to handle, cut and install. It is quickly and easily torqued with low clamping force, virtually impossible to over-compress, and does not deteriorate in the joint. It will not cold flow beyond initial relaxation, which may occur usually in the first 12 hours of application, does not normally require bolt re-torquing and will last indefinitely.

Using this material removes the need to mitre or dove-tail large gasket sections, and it is suitable for insertion in pipeline joints and surfaces. It can also be removed easily as and when required.

BETTER ECONOMY

Tefcan in sheet form offers both flexibility and economy.

Gaskets can be purchased pre-cut and held in stock or easily cut out to shape as required.

Tefcan gaskets seal stronger and last longer for all gasketing needs across a plant. Withstanding high pressures, temperatures and corrosive materials, joint sealing is improved, simplified and faster.

Major reductions in gasket material and operating costs means less downtime, extended leak-tight performance and the elimination of complicated gasket inventories.

TECHNICAL INFORMATION

- Sheet Size: 1.6mm (1/16") and 3.0mm (1/8") thickness in various sheet widths
- Compressability (ASTM.F-36): 72.6%
- Creep Relaxation (ASTM.F-38): 31.0%
- Matrix Tensile Strength: 5,800 to 6,800 psi
- Recovery (ASTM.F-36): 41%
- Specific Gravity (ASTM.D-792): 0.55 - 0.65
- Data above based on a sheet with 3mm (1/8") thickness



TEFCAN GASKET TAPE

TAPE INFORMATION

Tefcan gasket tape is in a flat continuous strip form, and combines the material and sealing benefits of our joint sealant and sheet gasketing. It can be cut to form full-face or strip sheet gaskets with minimal waste.

The flat profile is ideal for applications where a full face gasket is required or where gasket profile (thickness or width) is critical.

Large diameter gaskets can easily be created from the strip, with no cutting required nor waste. Simply overlap or scarf-cut the joint to form the seal. Small and intricate shape gaskets can also be cut quickly and accurately, due to the tape's flexibility and pliability. Bolt holes, on full face joints, can be readily punched through the tape after it has been applied to the flange.

The highly fibrillated expanded PTFE structure of Tefcan tape offers a unique combination of extreme gasket sealing properties. It is unaffected by all common chemicals across the whole pH range, performs from -240°C to +310°C and seals under pressures from vacuum up to to 3,000 psi.

The pliable nature of the tape allows it to be easily applied to any shaped flange and to fill surface irregularities. Due to its exceptional conformability, it will seal flanges that are rough or damaged with the bolt force spread over the complete gasket width. Minimum bolt loads required to seal are therefore a fraction of other gasketing materials, making Tefcan gasket tape ideal for safely and securely sealing glass, ceramic, plastic and other sensitive flanges.

Since Tefcan materials do not creep, relax or cold flow under practically all conditions, completed joints do not need re-torquing. Startup re-torquing and fugitive leaks during the joint's life are eliminated with tremendous savings in maintenance and produce-loss costs.

SIZES

Tefcan gasket tape is available as a thin, flat gasket strip of 1, 1.5 and 3mm (1/25", 1/16" and 1/8") thickness by 25, 50, 100 and 200mm (1, 2, 4 and 8") width.

Standard spool lengths are 15.2m (50ft) or 4.6m (15ft) solely for 3mm (1/8") thick tape.

Also available with non-adhesive back, made to order.



APPLICATIONS

- Anywhere a non-contaminating, non-ageing, non-hardening, flexible and versatile, secure and tight, long-lasting gasket seal with extreme chemical, pressure and temperature capability is required.
- Where a wide but low profile and thin gasket is best, such as vacuum distillation vessels and heat exchangers.
- To make large ring or complex joints, with no waste from cutting.
- To readily cut or punch small accurate gasket geometries with minimal waste.
- As a less expensive, superior and more convenient alternative to cut joints, envelope gaskets and spiral wound gaskets.
- Use in multiple layers to replace conventional PTFE envelope gaskets.
- Reface new, worn or damaged envelope, ring joint, or spiral wound gaskets, with a ring of 1 mm thick tape.
- To protect flanges from corrosion, fit Tefcan gasket tape to the inside edge, leaving no room for corrosive media to attack the flange surfaces.
- Use as a full face gasket with no need to stock individual gasket sizes. Lay the strip, overlap or scarf joint the ends, (scarf joining is recommended for 3mm thickness) and punch bolt holes once in place.
- When you need a wide gasket to seal tightly with low clamping force, such as on fragile material flanges made of glass and ceramic.



VULCAN TEFCAN

Tefcan Properties	User Benefits
Unique Forms	<ul style="list-style-type: none"> - Outstanding versatility - different types/sizes seal almost any static application. - Easier to install and remove, with a adhesive backing where needed. - Economical to use with minimal to no waste. - No need to make special gasket joints - simply overlap at the joint. - Few sizes/types to cover all requirements and greatly reduce inventories.
Made from 100% Expanded PTFE	<ul style="list-style-type: none"> - High tensile strength and structural integrity yet soft, flexible and easily cut. - Non-contaminating with near universal chemical resistance. - High temperature and extreme pressure range. - One material for all plant services - usable virtually anywhere. - FDA suitable for use in food and pharmaceutical industries. Tefcan meets the FDA requirements of PTFE: FDA21CFR177.1550. The adhesive, where used, meets the requirements of FDA21CFR175.105. - Non-ageing and non-hardening. - Easily removed from flanges with no residue.
Homogeneous structure with high tensile strength	<ul style="list-style-type: none"> - Resists gasket relaxation, cold flow and creep in all directions. Once bolted up, Tefcan remains leak tight. - Bolt re-torquing not required except in some extreme, heat cycling operations. - Contains no fillers nor binders so its mechanical, physical and seal retention properties remain constant. - Compresses to a solid homogeneous mass making it virtually impossible to over-compress the joint. - The tight and structurally stable seal ensures minimal product loss even in the most demanding of applications and conditions.
High compressibility and conformity with superior sealability	<ul style="list-style-type: none"> - Sealable with low clamping and bolting force - ideal for brittle flange materials such as ceramics or glass. - Conforms to and fills worn or uneven surfaces. - Extends service lifetime through ability to seal damaged or distorted flanges. - Seals without pitting nor permanently adhering to surfaces. - Increases gasket performance and life to give ultimate emission control.
Stable	<ul style="list-style-type: none"> - Lasts and seals indefinitely. Sealing performance and bolt torque retention will not deteriorate with time. - Fully retains structure and high tensile strength right up to service limits. - Inert to practically all chemicals for use in chemical, processing and transporting operations, from -240°C up to 310°C. - Seals against steam or condensates, and impervious to most gases, it is ideal for boiler and piping flanges.

TYPICAL APPLICATIONS

By Industry

Some industries suitable for Tefcan use include:

Pulp and Paper, Chemical Processing, Petrochemical, Pharmaceutical, Food and Drink, Offshore Oil and Gas, Automotive, Power, Marine and Mining, **and many more.**

Tefcan sealants are so versatile they can be used and provide exceptional performance in **virtually any industry**, from the simplest to the most complex applications and environments.

By Equipment

- | | |
|----------------------|---------------------|
| - Pipe Flanges | - Manhole Gaskets |
| - Glass Joints | - Fan Housings |
| - Pressure Vessels | - Turbine Cases |
| - Heat Exchangers | - Steam Vessels |
| - Pump Gaskets | - Hydraulic Systems |
| - Gearbox Lids | - Reactor Lids |
| - Compressor Flanges | - Diesel Engines |

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