

Uni-Seals Product Catalog

Category: PTFE



UNI-SEALS

Unimax Seals Company Limited

www.uniseals.com

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PTFE Sheet



PTFE (polytetrafluoroethylene) has the best chemical resistance among known plastics. It also has good aging stability, electrical insulation, wear resistance, and extremely low friction coefficient. The unloaded operating temperature range is $-180\sim+260^{\circ}\text{C}$, and the dielectric strength is more than 10KV/mm.

GS4000 Pure PTFE sheet

Uni-seals PTFE sheets are made from 100% virgin PTFE resin through skiving or molding methods.

PTFE sheets with thicknesses of 4mm or less are normally manufactured by skiving method. Virgin PTFE resin is firstly molded into a blank rod, and then skived into uniform sheets. PTFE sheets with thicknesses over 4mm are normally manufactured by molding method.

The sheets are available to be etched on one side or both sides (style number: GS4000E).

GS4500 PTFE sheet filled with glass fiber

Glass filled PTFE sheets normally contain 15% to 25% glass fiber. Compared with pure PTFE sheets, they have better wear resistance and less deformation under load, while the coefficient of friction is slightly increased.

Applications:

Used as sealing material, electrical insulating parts, lining pads, etc.

Specifications:

Style	GS4000	GS4500
Density	2.1~2.3g/cm ³	2.1~2.3g/cm ³
Tensile strength	≥15Mpa	≥10Mpa
Elongation at break	≥150%	≥100%
Temperature	-180°C~+260°C	-180°C~+260°C
Maximum pressure	10Mpa	10Mpa

Normal Dimensions:**Skived sheets:**

Thickness: 0.5~4mm; Width: 1000mm, 1200mm, 1500mm; Length: optional.

Molded sheets:

Length x Width	Thickness
150 x 150mm	1.0~30mm
250 x 250mm	1.5~30mm
300 x 300mm	1.5~30mm
450 x 450mm	1.5~30mm
600 x 600mm	2.0~30mm
800 x 800mm	3.0~30mm

Length x Width	Thickness
1000 x 1000mm	3.0~30mm
1200 x 1200mm	3.0~30mm
1000 x 2000mm	5.0~35mm
1500 x 1500mm	5.0~30mm
1800 x 1800mm	8.0~30mm
2000 x 2000mm	8.0~30mm

Other dimensions are also available on request.

PTFE Sheet with Glass Microspheres**GS4510 PTFE sheet with glass microspheres**

Filled with glass microspheres and produced through unique manufacturing process, the blue color sheet has improved performance over conventional PTFE sheets and minimizes cold flow and creep problems which typically exist in pure PTFE sheets. It withstands a wide range of chemicals for extended service life in various applications.

GS4510 is an alternative sheet material to Garlock Gylon 3504.

Suitable Mediums:

Moderate concentrations of acids, some caustics, hydrocarbons, solvents, hydrogen peroxide, refrigerants and cryogenics. Not suitable for: hydrofluoric acid, hydrogen fluoride, concentrated phosphoric acid, sodium cyanide, sodium hydroxide.

Specifications:

Color	Blue
Density	1.5~1.7g/cm ³
Compressibility	≥16%
Recovery	≥25%
Tensile strength	≥10Mpa
Elongation at break	≥150%
Temperature	-180°C~+260°C
Maximum pressure	6.0Mpa

Normal Dimensions:

1500 x 1500mm (60" x 60");

Thickness: 0.5~5mm.

Other dimensions are also available on request.

PTFE Sheet with Silica



GS4515 PTFE sheet with silica

Filled with silica and produced through unique manufacturing process, the brown color sheet has improved performance over conventional PTFE sheets and minimizes cold flow and creep problems which typically exist in pure PTFE sheets. It withstands a wide range of chemicals for extended service life in various applications.

GS4515 is an alternative sheet material to Garlock Gylon 3500.

Suitable Mediums:

Strong acids (except hydrofluoric), solvents, hydrocarbons, water, steam, chlorine, and cryogenics.

Specifications:

Color	Brown
Density	2.1~2.3g/cm ³
Compressibility	≥8%
Recovery	≥25%
Tensile strength	≥10Mpa
Elongation at break	≥150%
Temperature	-180°C~+260°C
Maximum pressure	8.0Mpa

Normal Dimensions:

1500 x 1500mm (60" x 60");

Thickness: 0.5~5mm.

Other dimensions are also available on request.

PTFE Sheet with Barium Sulfate**GS4518 PTFE sheet with barium sulfate**

Filled with barium sulfate and produced through unique manufacturing process, the white color sheet has improved performance over conventional PTFE sheets and minimizes cold flow and creep problems which typically exist in pure PTFE sheets. It withstands a wide range of chemicals for extended service life in various applications.

GS4518 is an alternative sheet material to Garlock Gylon 3510.

Suitable Mediums:

Suited for service against hydrofluoric acid and other strong chemicals such as potassium and sodium hydroxide, hydrogen fluoride, aluminium fluoride and chrome plating solutions.

Specifications:

Color	White
Density	Approx. 2.3g/cm ³
Compressibility	≥8%
Recovery	≥25%
Tensile strength	≥8Mpa
Elongation at break	≥150%
Temperature	-180°C~+260°C
Maximum pressure	8.0Mpa

Normal Dimensions:

1500 x 1500mm (60" x 60");

Thickness: 0.5~5mm.

Other dimensions are also available on request.

Expanded PTFE Sheet



GS4100 Expanded PTFE sheet

Our expanded PTFE sheets are made from 100% PTFE through special manufacturing process. Composed of innumerable multidirectional fibers, the products have a particular high density fiber texture. Under pressure the fibers will mutually tangle, making the texture even tighter and resulting in better sealing performance.

Expanded PTFE sheet has fine flexibility, high tensile strength, good resistance to temperature, creep, cold flow, corrosion, and aging. It is non-toxic and non-pollution, easy to cut and install, and not easy to distort.

The material may seal rough and damaged flange, and maintains excellent sealing performance even under severe corrosive environment and high temperature.

Applications:

The product is suitable with all kinds of flanges. Widely used in industries of chemical, petroleum, nuclear power, steelmaking, papermaking, shipbuilding, semiconductor, aerospace, food, pharmacy, medical instrument, and so on.

Specifications:

Material	Virgin PTFE with expanded multidirectional fibrous texture
Temperature	-180°C~+260°C
Maximum pressure	10Mpa
PH range	0~14

Normal Dimensions:

1500 x 1500mm (60" x 60");

Thickness: 0.5~8mm.

Other dimensions are also available on request.

PTFE Rod



RO4000 PTFE rod

Uni-seals PTFE rods are extruded or molded from 100% virgin PTFE resin. PTFE rods with diameters at 150mm or less could be manufactured by extruding method, while rods with diameters above 150mm are normally manufactured by molding method.

Applications:

Used for making sealing gaskets, electrical insulating materials, and antisticking materials.

Specifications:

Density	Tensile strength	Elongation at break	Temperature
2.1~2.3g/cm ³	≥14Mpa	≥140%	-180°C~+260°C

Normal Dimensions:

For extruded PTFE rods:
 Diameter: 4~150mm (normally metric sizes); Length: 1000mm, or optional.

For molded PTFE rods:
 Diameter: optional; Length: normally at 300mm or below.

Special dimensions are also available on request.

PTFE Tube**TU4000 PTFE tube**

Uni-seals PTFE tubes are extruded or molded from 100% virgin PTFE resin.

Applications:

Used as insulating cover for conductor, pipe for corrosive fluids. It is also applied for sealing the valve rod and rotating pump shaft in corrosion-resistant case.

Specifications:

Density	Tensile strength	Elongation at break	Temperature
2.1~2.3g/cm ³	≥18Mpa	≥230%	-180°C~+260°C

Normal Dimensions:

For extruded PTFE tubes:

O.D.: 14~300mm (normally metric sizes); Length: optional.

For molded PTFE tubes:

O.D.: optional; Length: normally at 300mm or below.

Special dimensions are also available on request.

Smoothbore PTFE Hose



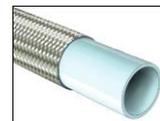
HS4000 Smoothbore PTFE hose

The smoothbore PTFE hoses are manufactured from high pressure PTFE dispense resin, extruded and sintered. They could be made in opaque or translucent.

They have many excellent properties such as good chemical resistance and weatherability, low coefficient of friction, non-toxicity, odourless, flavourless, fire-retardant and excellent electrical insulation.

HS4000B Stainless steel braided smoothbore PTFE hose

HS4000B hoses are made with outer stainless steel wire braiding reinforcement over HS4000 Smoothbore PTFE hoses. The stainless steel braiding is corrosion resistant against most chemicals. Designed for applications in relatively high pressures and which require a smooth inner bore for improved flow and easy cleaning.



Applications:

Widely used in chemical and general industries in situations where aggressive fluid or environments are involved. It can also be used as a protective sleeving for cables and as a substitute for nylon hose where pressures allow.

Specifications (PTFE):

Density	Tensile strength	Elongation at break	Dielectric strength	Temperature
2.1~2.3g/cm ³	≥15Mpa	≥200%	≥10KV/mm	-70°C~+260°C

Normal Dimensions (HS4000):

Inner diameter	Wall thickness	Length
0.5, 0.6, 0.7, 0.8, 0.9, 1.0mm	0.2~0.5mm	Optional
1.2, 1.4, 1.5, 1.6, 1.8mm	0.2~0.8mm	
2, 2.2, 2.4, 2.5, 2.6, 2.8, 3.0, 3.2, 3.4, 3.5, 3.6, 3.8, 4.0mm	0.2~1.5mm	
5, 6, 7, 8mm	0.5~2.0mm	
9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 25mm	1.0~2.0mm	
≥25mm	1.5~2.0mm	

Other dimensions are also available on request.

Convuluted PTFE Hose**HS4600 Convuluted PTFE flexible hose**

The convuluted hoses provide a far tighter bend radius than most smooth bore hoses, and are best suitable when high flexibility is required. They could be used in many tough industrial applications where smooth bore is not required. They are lightweight, and could handle a very wide range of chemicals at relatively high temperatures and pressures.

HS4600B Stainless steel braided convuluted PTFE flexible hose

HS4600B hoses are made with outer stainless steel wire braiding reinforcement over HS4600 Convuluted PTFE flexible hoses. The stainless steel braiding is corrosion resistant against most chemicals. Designed for applications in relatively high pressures.

The two ends might be fixed with flanges or quick connectors.

Applications:

For conveying of acids, caustics, fuel, oil, oxidizing agents and grease, steam, foods, drugs, hot lacquers, solvents, and so on. Widely used in industries such as chemical, gas, oil, marine, paper, automotive, food and beverage, etc.

Specifications (PTFE):

Density	Tensile strength	Elongation at break	Dielectric strength	Temperature
2.1~2.3g/cm ³	≥15Mpa	≥200%	≥10KV/mm	-70°C~+260°C

Normal Dimensions (HS4600):

DN	OD x ID (Base pipe)	Length
DN8	10 x 8mm	Optional
DN10	12 x 10mm	
DN12	14 x 12mm	
DN15	18 x 15mm	
DN20	23 x 20mm	
DN25	28 x 25mm	
DN32	36 x 32mm	
DN40	42 x 38mm	
DN50	52 x 48mm	
DN65	65 x 62mm	
DN80	82 x 77mm	
DN100	104 x 100mm	
DN125	124 x 120mm	

Other dimensions are also available on request.

PTFE Skived Film**FL4000 PTFE skived film**

The PTFE films are made through molding, sintering and rotary skiving process.

They have good tensile strength and dielectric characteristics, excellent chemical resistant and no aging. Could be timelessly served in the applications with temperature between $-180^{\circ}\text{C}\sim+260^{\circ}\text{C}$.

Applications:

Used as sealing material, oilless lubricating material, and dielectric material at any frequencies, such as capacitor dielectric, wire isolation, electrical instrument isolation, etc.

Specifications:

Density	Tensile strength	Elongation at break	Temperature
2.1~2.3g/cm ³	≥15Mpa	≥150%	-180°C~+260°C

Normal Dimensions:

Thickness: 0.03~0.1mm;

Width: 30~1000mm;

Length: ≥10m.

PTFE Tape



TA4000 PTFE skived tape

PTFE skived tapes are manufactured from high strength suspension PTFE resin. Virgin PTFE resin is firstly molded into a blank rod, and then skived into tapes in desired thicknesses.

TA4007 PTFE adhesive tape

The PTFE skived tapes are etched and coated with adhesive on one side, and then slit into different sizes. The tapes have good anticorrosive and electrical insulating property, and not aging. Widely used in the fields where PVC tapes are not suitable to apply.

Applications:

Primarily used in electrical applications such as coil wraps and separators, transformer, slot liners and harness wrapping where good insulation and heat resistance are needed. They are also used in mechanical applications requiring high temperature resistance and a non-stick surface such as roll protection in flat die extrusion.

Specifications:

Density	2.1~2.3g/cm ³
Tensile strength	≥15Mpa
Elongation at break	≥150%
Dielectric strength	≥10KV/mm
Temperature	-180°C~+260°C

Normal Dimensions:

Thickness: 0.1~4mm;

Width: 10~500mm;

Length: optional.

PTFE Thread Seal Tape



TA4800 PTFE thread seal tape

PTFE thread seal tapes are very thin tapes made of 100% virgin PTFE. They are quick, convenient thread sealant used to wrap the threaded ends of pipes to improve the water or gas tightness. They are chemically inert, nonhardening, non-contaminating permanent seal able to withstand wide temperature range.

Specifications:

Density	0.25~1.20g/cm ³
Temperature	-180°C~+260°C
Tensile strength	≥7.0Mpa
Elongation at break	≥20%
PH range	0~14

Colors:

Tape: normally in white color. For high density tapes, yellow and pink colors are also available on request.
 Plastic cover and spool: various colors according to customer’s requirement.

Normal Dimensions:

Thickness: 0.075~0.2mm;
 Width: 12~300mm;
 Length: 5~50m.

Expanded PTFE Tape



TA4100 Expanded PTFE tape

They are inorganic sealant tapes made of 100% virgin PTFE for static applications. A unique process converts PTFE to a microporous fibrous structure, resulting in a sealant tape with an unsurpassed combination of mechanical and chemical properties.

TA4107 Expanded PTFE tape with self-adhesive

For easy fixing onto the sealing surfaces, normally the expanded PTFE tapes are presented with self-adhesive tape backed on one side.

Applications:

Especially suitable for sealing flange connections, pipe systems, hydraulic and pneumatic systems. In addition, they are also ideal for seals in glass, enamel and plastic flanges, vessels and special shaped sealing surface.

EPTFE tapes save money and time. Since there is few scrap or waste, they cost less than other gasket materials; and installation time is kept to a minimum since there are no templates, precutting or special fitting requirements.

Specifications:

Density	0.65~0.75g/cm ³
Temperature	-180°C~+260°C
Maximum pressure	40bar
PH range	0~14
Suitable mediums	Acids, alkalis, solvents, gases, etc.

Normal Dimensions:

Width	Thickness	Length/roll
3mm	1.5mm	30m
4mm	2.5mm	30m
5mm	2.0mm	25m
6mm	3.0mm	25m
7mm	2.5mm	25m
8mm	3.0mm	25m
10mm	3.0mm	25m
10mm	4.0mm	25m
12mm	4.0mm	10m
14mm	5.0mm	10m
16mm	5.0mm	10m

Width	Thickness	Length/roll
17mm	6.0mm	10m
20mm	7.0mm	5m
25mm	8.0mm	5m
30mm	3.0mm	5m
30mm	5.0mm	5m
40mm	3.0mm	5m
40mm	5.0mm	5m
50mm	3.0mm	5m
50mm	5.0mm	5m
60mm	3.0mm	5m
80mm	3.0mm	5m

Other dimensions are also available on request.

Expanded PTFE Round Cord**CO4100 Expanded PTFE round cord**

Valve-spindle cords made of pure expanded PTFE, used as valve-spindle and flange seals in the chemical, pharmaceutical and food processing industries. Flanges are sealed quickly and securely by simple insertion of a circle of PTFE round cord (ends twisted).

Specifications:

Density	0.75~0.85g/cm ³
Temperature	-180°C~+260°C
Maximum pressure	40bar
PH range	0~14
Suitable mediums	Acids, alkalis, solvents, gases, etc.

Normal Dimensions:

Diameter: 2~10mm;

Length: optional.

PTFE Gasket



GA4000 PTFE gasket

PTFE gaskets are molded from PTFE resin, or cut from virgin PTFE sheets, rods or tubes.

PTFE has the best chemical resistance among known plastics. It also has good aging stability, electrical insulation, wear resistance, and extremely low friction coefficient. The unloaded operating temperature range is $-180\sim+260^{\circ}\text{C}$.

GA4500 PTFE gasket filled with glass fiber

The gaskets are molded from glass filled PTFE resin, or cut from glass filled PTFE sheets, rods or tubes. Compared with pure PTFE gaskets, they have better wear resistance and less deformation under load.

Applications:

PTFE gasket is one of the most suitable types of gaskets for a variety of sealing applications. Different types of Uni-seals PTFE gaskets are available to meet various application demands.

Specifications:

Style	GA4000	GA4500
Density	2.1~2.3g/cm ³	2.1~2.3g/cm ³
Tensile strength	≥15Mpa	≥10Mpa
Elongation at break	≥150%	≥100%
Temperature	-180°C~+260°C	-180°C~+260°C
Maximum pressure	10Mpa	10Mpa

Dimensions:

According to standards of ASME B16.21, DIN, etc. Special sizes and shapes are also available upon request.

Maximum external diameter is up to 2000mm.

For gaskets with outer diameter more than 1000mm, our style TA4107 expanded PTFE joint sealant tape could be considered as an easy and economical substitute.

PTFE Envelope Gasket



GA4050 PTFE envelope gasket

Our PTFE envelope gaskets consist of asbestos, non-asbestos, rubber, corrugated stainless steel etc. as cushion material encased in PTFE envelope, resulting in gaskets with the excellent corrosion resistance of PTFE and the strength and resilience of core materials. It can be produced in several types to meet the most demanding applications.

GA4060 V style PTFE envelope gasket

The PTFE is slit in center from outside.

It is an economical solution for lower pressure applications.



GA4070 Square style PTFE envelope gasket

The PTFE is cut into square envelope form.

For use in mediums with higher pressure.



GA4080 U style PTFE envelope gasket

The PTFE is heat welded at the joint.

Normally for $DN \geq 200\text{mm}$.



Applications:

PTFE envelope gaskets are the ideal solution for applications demanding virtually 100% chemical resistance and where the mechanical properties of a compressed gasket material are also needed. They perform well in food processing industries where contamination of the medium is not permitted. Suitable for mediums like strong alkalis, cryogenic fluids, oxygen, chlorine gas, etc.

Properties:

Virtually 100% chemically resistant.

Temperature range from -180°C to $+260^{\circ}\text{C}$, depending on the core.

Mechanical strength dependent on core selection.

Pressure: $\leq 4\text{Mpa}$.

Dimensions:

According to standards of ASME B16.21, DIN, etc. Special sizes and shapes are also available upon request.

Normal Thicknesses:

Thickness of core: 2.0mm;

Thickness of PTFE: $0.5\text{mm} + 0.5\text{mm} = 1.0\text{mm}$.

From 20 mm to 500 mm: the gaskets are made in one piece;

From 500 mm upwards: the gaskets are welded. There are no size limitations for gaskets with welded envelopes.

Filled PTFE Products



Filled PTFE products are manufactured from filled PTFE resin, which is a compound of PTFE granular resin and certain kind of filler, for example glass fiber, carbon fiber, bronze, and lubricating materials like graphite, molybdenum disulfide, etc. The filled PTFE products have improved compression strength, better abrasion resistance, higher thermal conductivity and lower thermal expansion compared with pure PTFE products.

The typical improved properties with different fillers are:

Filler	Improved properties
Glass fiber	Enhanced wear resistance Less deformation under load
Graphite	Extremely low coefficient of friction Fairly good compressive strength Good wear resistance
Carbon fiber	Good thermal resistance Resistance to deformation
Bronze	Enhanced compressive strength Good wear resistance High thermal conductivity

GS4500 PTFE sheet with filler

Made from filled PTFE resin through skiving or molding method.
Available to be etched on one side or both sides (style number: GS4500E).

GA4500 PTFE gasket with filler

Molded, skived or cut from filled PTFE sheets, rods, tubes, etc.

Other filled PTFE products such as rods, tubes, valve seats, bearings, piston rings are also available on request.

**Note:**

1. All technical details quoted throughout this catalogue are based on our extensive tests and years of experience, however, they can only serve as guide values. Your specific application should not be undertaken without independent study and evaluation for suitability. Failure to select proper products and specifications could result in property damage and/or personal injury.
2. Technical details subject to change without notice. This edition cancels all previous issues.

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