



FTL TECHNOLOGY

# Packings and Gaskets



[www.ftl.technology](http://www.ftl.technology)

**FTL Technology** is a specialist provider of innovative high performance sealing solutions for a wide range of critical applications.

Our braided packing materials and gaskets have been engineered to perform to a high standard under the most demanding of operating environments.

FTL's uniquely personal consultancy service ensures the best possible sealing system for the specific demands of your application.

With FTL Technology, your sealing requirements are in the safest of hands.



## Why FTL for Braided Packings?

FTL Technology understands the needs of manufacturers and operators of valves, pumps and other static, semi-static and reciprocating equipment and the criticality of the seal in these applications to optimise performance.

Whatever the operating environment of your equipment, from temperature and pressure extremes through to mechanical stresses and exposure to corrosive media, FTL Technology can develop a sealing solution which is second to none. When it comes to braided packings, we have a refined materials range which is unrivalled in its depth. Together with high performance gaskets, and a level of ongoing consultancy support customised to your requirements, FTL Technology goes further to give you a better level of sealing support.

### Product Quality

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Leading OEMs know to trust FTL Technology for exceptional quality engineering across all sealing elements. We enjoy a proud reputation for our consistently high standards, working with both OEM and MRO alike.

### Flexibility

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Whether you need standard braided packing materials or a custom seal setup, we can meet all your valve sealing requirements. We can also create uniquely tailored kits, containing seals, sleeves and backup O-rings. Everything you need, for every pump or valve.

### Volume

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FTL Technology is able to meet the requirements of customers of all scales. With our resources, we can deliver what you need when you need it. Get in touch with our valve sealing experts to discover how we can best support your operation.

### Support

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We provide an end-to-end service from consultancy to installation, working closely with you to identify your needs before selecting the materials needed for your perfect seal. Our brand of personal service has made all the difference for our repeat customers.

# What kind of packing do you need?

Packings are used in valves and rotary and reciprocating pumps across a highly diversified range of applications. Each of these different applications requires a packing material with resistance to distinct operational and environmental challenges.

FTL Technology has provided braided packing solutions for oil and gas, power generation, food, pharmaceutical and chemical processing customers, recommending the most suitable pump and valve packing for any given application. Our experienced team of sealing professionals can advise you on the packing materials which provide the greatest resistance to wear, offer the best flexibility and perform to a high standard under temperature and pressure extremes. Whatever you need your packings and gaskets to resist, we have the product range and the expertise to meet your needs.

## Factors in packing selection

FTL Technology will work closely with you to identify the right packing selection, which will reduce your downtime, your leakage and your costs. To do this, we will consider a number of factors, including

- Temperature
- Pressure
- Speed
- Media type



## Characteristics of FTL packing materials



### PTFE

- Excellent resistance to extrusion
- Low friction coefficient
- Dimensional stability
- Resistant to most chemical compounds



### Carbon

- Excellent extrusion resistance
- High elasticity
- High thermal resistance
- Easy to maintain



### PTFE-Graphite

- Strong resistance to heat and chemicals
- Self lubricating
- High density
- Good pliability



### Glass fibre

- Excellent extrusion resistance
- High elasticity
- High thermal resistance
- Easy to maintain

FTL Technology production sites are certified to ISO 9001, and are able to manufacture according to international standards including ASME and EN, as well as the individual requirements of the customer.

Working with FTL Technology, you will benefit from a comprehensive consultancy service which manages your packing, gasket and other sealing needs from the first call through to installation, training and ongoing support.

# Braided Packing

FTL Technology can supply a broad range of different braided packing materials suited to pump and valve applications, developed through close collaboration with leading test institutes and development facilities, to ensure outstanding sealing performance in all environments.

General Purpose Packings								
Product Reference	Pressure [Bar]				Speed [m/s]		Temperature [ °C]	pH Resistance
	Rotary Pumps	Plunger Pumps	Valves	Static	Rotary Pumps	Plunger Pumps		
Y1	16				6		-20 to +100	6-9
A1	20		100		12		-50 to +150	2-12
78	25		100		26		-50 to +280	1-13
72	25	250			25	2	-50 to +280	1-13
AG	25				20		-50 to +280	1-13
BG	25				25		-50 to +280	1-13
EG				10			-50 to +1100	5-9
FG				10			-50 to +550	5-9
GG				10			-50 to +750	5-9
96			1000				-200 to +550 (+700 for steam)	0-14
HG			300				-30 to +400 (+550 for steam)	
KG	40				40		-100 to +280	0-13
LG	25		250		25		-200 to +450 (+650 for steam)	0-14
MG	25		450		25		-30 to +450 (+550 for steam)	0-14
NG	25				25		-50 to +300	0-14
PG	25				25		-50 to +280	1-13
77	25		160		6		-30 to +250	0-14

FEC Packings								
Product Reference	Pressure [Bar]				Speed [m/s]		Temperature [ °C]	pH Resistance
	Rotary Pumps	Plunger Pumps	Valves	Static	Rotary Pumps	Plunger Pumps		
JG			450				-200 to +450 (+650 for steam)	1-14
QG			250				-200 to +280	0-14
RG			250				-200 to +280	0-14
SG			300				-200 to +400 (+550 for steam)	0-14
TG			250				-200 to +400 (+550 for steam)	0-14

FDA Packings								
Product Reference	Pressure [Bar]				Speed [m/s]		Temperature [ °C]	pH Resistance
	Rotary Pumps	Plunger Pumps	Valves	Static	Rotary Pumps	Plunger Pumps		
70	40	1000			13	2	-40 to +120	5-11
73		800	250			2	-200 to +280	0-14
CG	15				8		-100 to +250	0-14
95	25		250		20		-100 to +280	0-14
DG		500	250			2	-200 to +280	0-14

\* Figures are indicative of maximum performance levels in categorical isolation, but may vary in the field. (Example: 70 working under 1000 Bar at 120°C may not resist pH 11)

# Graphite and Vee Packing

As alternatives to our wide range of braided packing materials, FTL Technology can also recommend other packing materials which will optimise pump and valve performance, and help to keep fugitive emissions under control.

## Graphite Rings, Body, Bonnet & Cover Seals

Graphite packing rings and cover seals demonstrate permanent elasticity with very high temperature and chemical resistance, up to 2,500°C for inert gas. Resistant to cold flow, shrinkage and ageing, graphite delivers excellent, adaptable and reliable sealing performance with long term cost savings.

**Applications:** Power generation, nuclear, food, water and oxygen



Pressure [Bar]	1000	<b>Media:</b> Hot and feed water, steam, heat transfer oils, hydrocarbons and many other media  <b>Exceptions:</b> Strongly oxidising media
Temperature Range [ ° C ]	Most media and air: -200 to +500	
	Steam: -200 to +700	
	Inert gas: -200 to +2500	
pH Value	0-14	

# Gaskets

FTL Technology gaskets are engineered to perform exceptionally well under the stresses of high compressive loads and extreme temperature ranges. With high reliability rates and long lifetimes, our range of gaskets can keep your operational downtime to an absolute minimum.

## Spiral Wound Gaskets

Alternating layers of metallic elements and sealing material filler deliver outstanding sealing quality and solid construction. Available in pure spirals, or with stainless steel inner or outer rings.

- Excellent elastic recovery
- High strength
- Stable sealing performance under high temperatures and pressures



Filler material	Graphite (98-99.8% purity)	PTFE	Mica
Temperature range [ ° C ]	-30 to +550	-200 to +280	+600 to +1000
Bar	40	40	1



## Kammprofile Gaskets

Kammprofile gaskets are known for their reliability levels, constructed from a solid corrugated metal core with a soft sealing material on both sides. Applications include heat exchangers and thermal cycling.

- High reliability
- Strong stability under frequent temperature and pressure cycles
- Easy to install and repair, for reduced downtime and cost of ownership

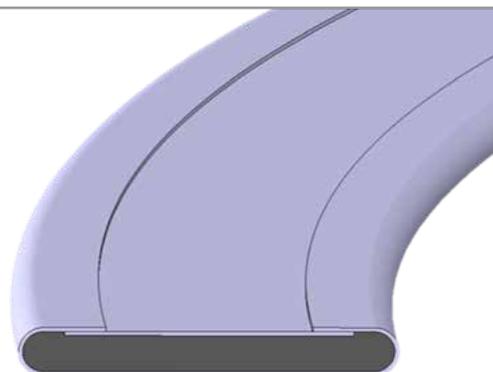


Filler material	Graphite (98-99.8% purity)	PTFE
Temperature range [°C]	-30 to +550	-200 to +280
Pressure [MPa]	40	40
pH value	0 to 14	0 to 14

## Metal Jacketed Gaskets

Metal jacketed gaskets are constructed from a soft material filler which is encased in a metallic shell - made from a 'C' shaped section and an additional metal inlay.

- Extensive material choice - more versatility in temperature pressure and chemical resistance
- Robust and hard-wearing
- Simple to install and handle



Jacketed Material	Maximum Temperature [°C]
Tinplate	+400
Red copper	+400
304	+600
316	+650
316L	+700

# Fugitive Emission Control (FEC)

Improperly sealed valves are responsible for hundreds of tonnes of fugitive emissions each year. This has significant implications for the environment, but there are also major legislative and cost-saving pressures on controlling fugitive emissions more effectively.

FTL braided packing and gasket solutions are at the cutting-edge of material technology in this field, offering the optimal combinations of sealing components to cut fugitive emissions to an absolute minimum, whatever your specific operating environment may be.

FTL Technology have engineered a combination of sealing elements as part of an custom FEC kit. These FEC kits combine the extrusion resistance of mechanical packing with the advantages of a high performance elastomer seal. Our FEC kits are customised to the precise requirements of your application.

Applications for FEC kits include valve OEMs and MRO for oil and gas, as well as food, pharmaceuticals and chemical processing.



## FEC Sealing Sets: The Benefits

- Meet safety obligations and regulations more efficiently
- Minimise economic losses due to gas or other product leaks
- Increased environmental responsibility



## Tailored Sealing Solutions

FTL Technology positions itself as the partner of choice for fully customised, engineered sealing solutions using the latest sealing technologies. Following onsite technical surveys to determine the scope and scale of your requirements, FTL Technology will create a fugitive emission control sealing system which is both technically and commercially viable.

**All FTL Technology fugitive emissions control products conform to TA Luft legislature.**



*\*FTL Packings comply with the above certifications. For specific grades, check with an application engineer.*



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