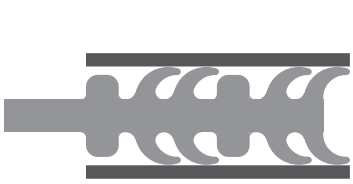
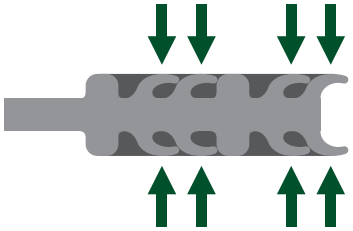
AIGI ENVIRONMENTAL INC.

THE FUTURE OF HIGH PERFORMANCE SEALING HAS ARRIVED

Patented **FISHBONE®**



Uncompressed



Compressed

- ***1,000,000*** times **lower leakage** than TA-LUFT Test limit
- ***25*** times **lower leakage** than Chevron Fugitive Emissions Test limit
- ***Pass*** API 6FB Fire Test

A brief history of Metal Gaskets

In 1912, over 100 years ago

- ***Spiral Wound Gaskets*** *- A great invention for its time*

Advantages

※ Combine strength from metal strips with sealing capability from a non-metallic material

※ Self-energized by fluid pressure

Disadvantages

※ The “un-wind” and crushing problem

※ High minimum sealing load requirement causes bolt yielding and flange rotation

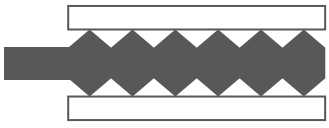
In 1976, over 36 years ago

- ***Camprofile Gaskets*** *- A good improvement in gasket strength*

Advantages

※ Strong, will not un-wind and will not crush

※ Interchangeable with spiral-wound gaskets



Disadvantages

※ Less elastic compared to spiral wound gaskets resulting in poor recovery

※ Sharp teeth bite into flange surfaces causing damage and need to re-surface

※ Not self-energized by fluid pressure

Now

- ***Fishbone® Gaskets***

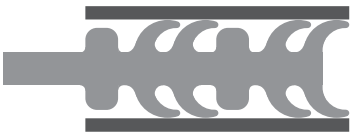
※ Balance strength with flexibility

※ Interchangable with existing gaskets standards

※ Will not damage flanges

※ Uncrushable and does not unwind

※ Extremely low minimum load requirements dramatically improve sealing performance



The Fishbone® Gasket Design & Advantages

Design

- Helical concentric bevelled ribs, each side covered with Graphite, PTFE or Mica
- Unitary design with or without a centering ring
- Rounded, non-sharp contact surface
- Unique Stop-Step design

Advantages

- Internally self-energized and by fluid pressure for better sealing performance
- Interchangeable with all spiral wound gaskets and Camprofile gaskets
- Will not damage flange like Camprofile gaskets and spiral wound gaskets
- Prevents over-compression of sealing element

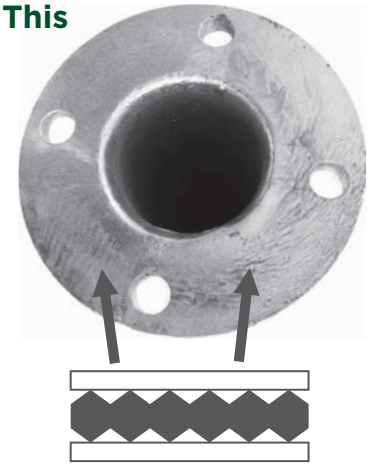
Change This

Unwound Spiral Wound Gaskets

To This

Fishbone® Gasket

Change This



Camprofile Teeth Damaging Flange Face

To This

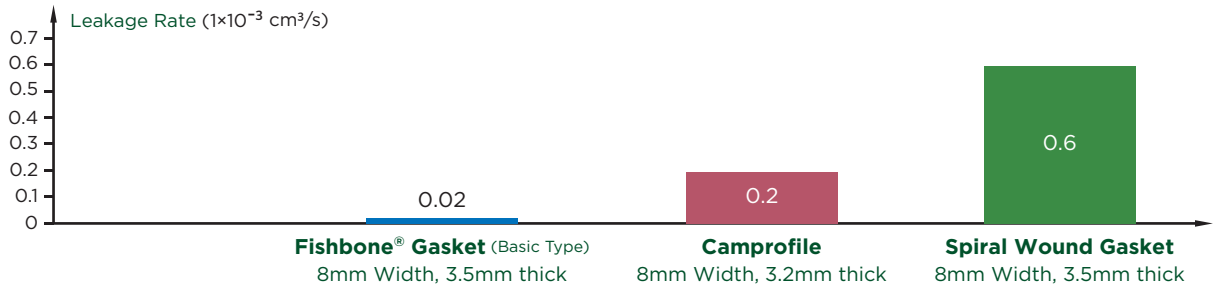
Fishbone® Gasket

Test Results

Leakage Test *- Fishbone® Gasket vs. Spiral Wound vs. Camprofile*

- Test Parameters (ASTM F37) Gasket Stress 30 MPa / 4351 psi | Nitrogen Pressure 4 MPa / 580 psi
  Test Report#: MF-130933 & MF-130935

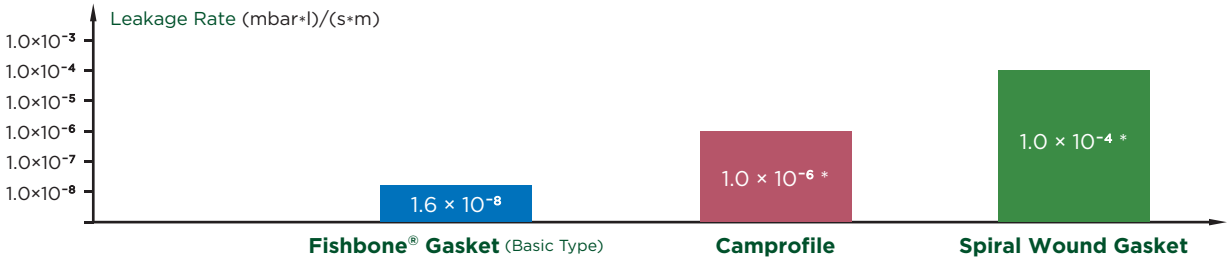
Test Item	**Fishbone® Gasket** (Basic Type) 8mm Width, 3.5mm thick	**Camprofile** 8mm Width, 3.2mm thick	**Spiral Wound Gasket** 8mm Width, 3.5mm thick
Leakage Rate (1×10^{-3} cm³/s)	0.02	0.2	0.6



TA-LUFT Test *- Fishbone® Gasket vs. Spiral Wound vs. Camprofile*

- Test Parameters – VDI Guideline 2440 & VDI Guideline 2200

Test Item	**Fishbone® Gasket** (Basic Type)	**Camprofile**	**Spiral Wound Gasket**
Leakage Rate (mbar∗l)/(s∗m)	1.6×10^{-8}	1.0×10^{-6} *	1.0×10^{-4} *



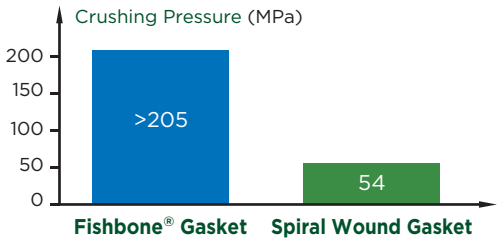
*Average values from accredited international laboratory

The Fishbone® Gasket is considered to be of High Grade Performance according to TA-Luft.

Test de résistance à la compression *- Fishbone Gasket vs. Spiral Wound*

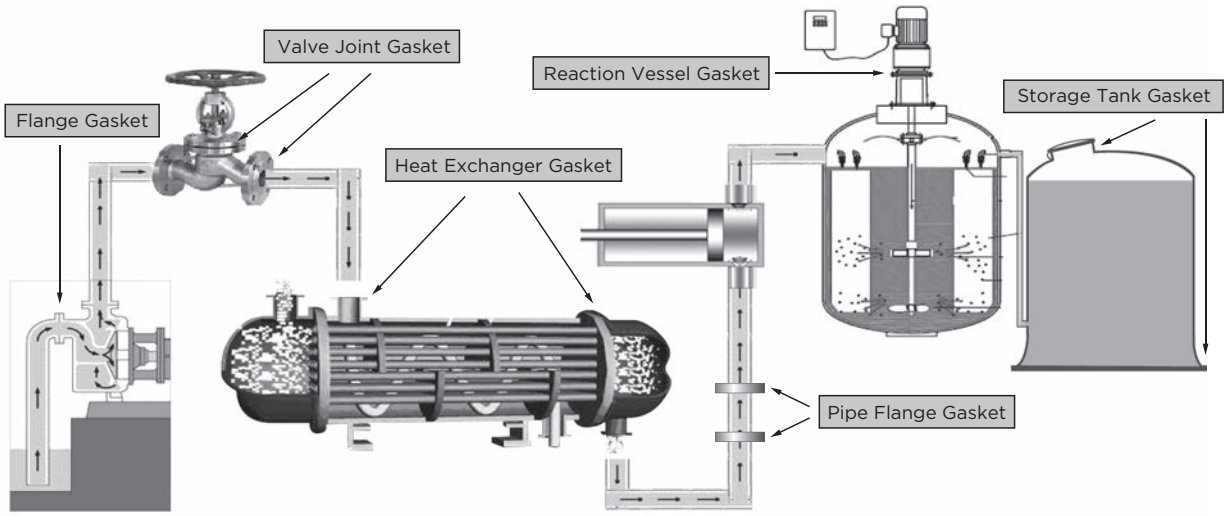
- Test Parameters Pressure 205 MPa / 29732 psi
  Test Report#: MF-130936

Test Item	**Fishbone® Gasket** 22.5mm Width, 4.5mm thick	**Spiral Wound Gasket** 22.5mm Width, 4.5mm thick
Crushing Pressure (MPa)	>205	54



Applications

- Critical Flange Applications
- Low Emissions Sealing
- High Pressure Flanges
- Steam Sealing
- Fire Safe Requirements
- Piping and Equipment
- Direct Replacement of All Spiral Wound Gaskets and Camprofile Gaskets



Technical Specifications

Standard Materials

- Metal Materials
  304, 304L, 316, 316L, 321
- Non-metallic Sealing Materials
  Flexible Graphite, PTFE, Mica

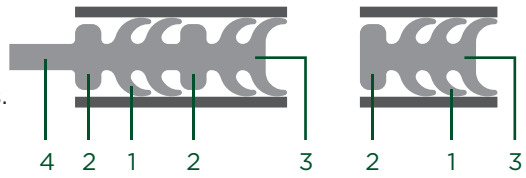
※ Other Materials on request

Temperature Range

Facing Material	Minimum °C	Maximum °C	Minimum °F	Maximum °F
Flexible Graphite	-212	400	-350	750
PTFE	-200	260	-400	500
H.T.GR(High Temp. Graphite)	-200	550	-418	1022
ePTFE(Expanded PTFE)	-200	260	-400	500
Mica	-212	1000	-350	1850

Features

1. Patented helical concentric bevelled ribs.
   The number of ribs grows with the increasing pressure class.
2. Unique Stop-Step design Manufactured with single or double stop-steps depends upon the sealing width.
3. Self-energized by fluid pressure
4. Unitary design with (Centering Ring Type) or without (Basic Type) a centering ring



Centering Ring Type *Basic Type*

How to Order

- ***Standard Sizes***

Imperial

NPS (in)：1/2" ~ 60"　　CLASS (lbs)：150 ~ 2500

Metric

DN (mm)：10 ~ 2000　　PN：1.6 ~ 40

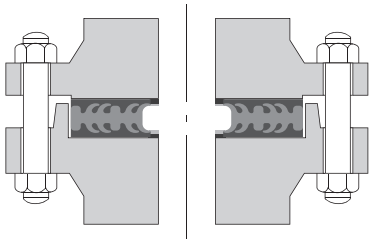
- ***International Standard***

EN 1514	API 601	BS 4865
EN 12560	DIN 2690~2692	BS 3381
ASME B16.20	JIS B2404	BS 10
ANSI B 16.21	JPI-7S-41	BS 4504

※ Please consult with AIGI Environmental Inc. for all your standard and non standard gasket requirements.

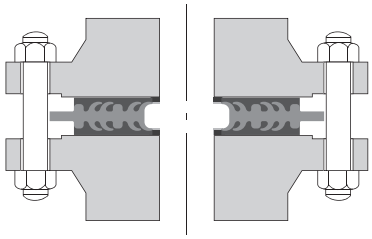
Interchanegable

Basic Type



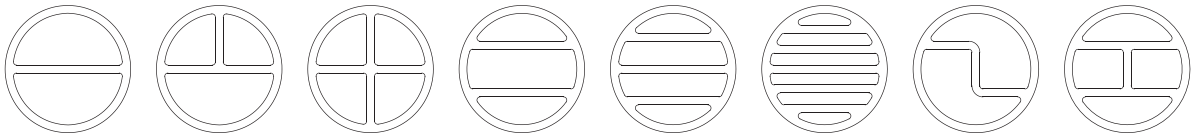
Replaces Spiral Wound Style R, Style RIR & Camprofile Basic Type

Centering Ring Type



Replaces Spiral Wound Style CG, Style CGI & Camprofile Reinforced Type

Heat Exchanger is available!



and more!

AIGI ENVIRONMENTAL INCORPORATED

A Subsidiary of AIGI Industrial Group

Contact: info@aigienvironmental.com　　www.aigienvironmental.com

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