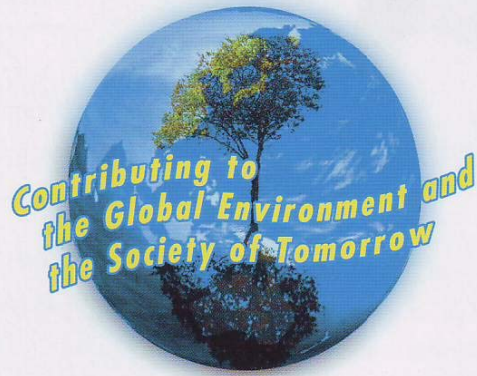
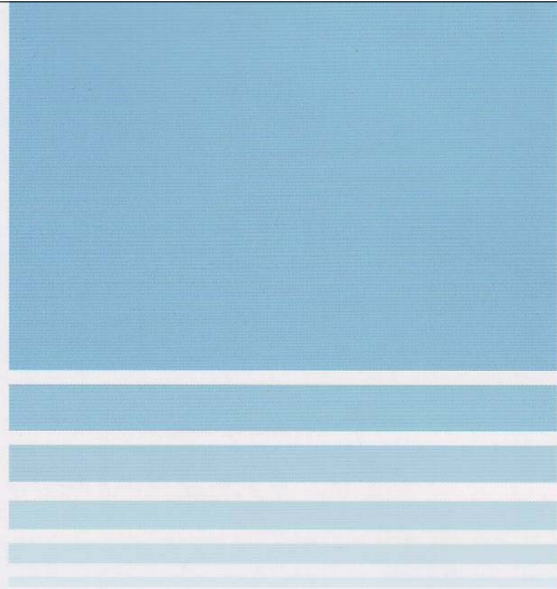




Marine  
Machine  
Motor Car



Electronics  
Energy  
Ecology



# Pillar Products for **MARINE SERVICE**





Since 1924, Nippon Pillar Packing Co.,Ltd has contributed to the growth of industries with our total sealing technology. In our long and glorious history, we have always put emphasis on Research and Development, and served the state-of-the-art products in the field of leak preventive products such as mechanical seals, gland packings, gaskets and Pilaflon® products.

PILLAR mechanical seals, by using the superior sealing materials based on our advanced technology and abundant experience, have been employed in much severe applications such as for nuclear power stations. PILLAR packings/gaskets are available with our differential raw material to the requirements of fugitive emission control and of low torque in the valves. Pilaflon® products has used the best suitable material in our integral manufacturing process from raw material.

“Quality first” is our company motto, and we are the first seal manufacturer in Japan to be certified ISO 9001. Also, we were certified ISO 14001 for environmental concern.

PILLAR originated from marine industry. PILLAR packing No.1 was developed for steam reciprocating engine in the vessels, and several differential products of mechanical seals & packings have been released to meet the request of ship-owners and shipyards.

This catalogue was prepared to help you select the best suitable products to your specifications in marine industries. It shows only typical products to cover the specifications as much as possible to minimize the inventory stock. But, our products are not shown exhaustively here. We have PILLAR distributors worldwide to serve you, so please contact us for any further information.



BRAIDING OF GLAND PACKING



LAPPING OF MECHANICAL SEAL



DRY GAS SEAL TEST BENCH



ELECTRON MICROSCOPE



SANDA FACTORY



# PILLAR Products in Process of Marine Service

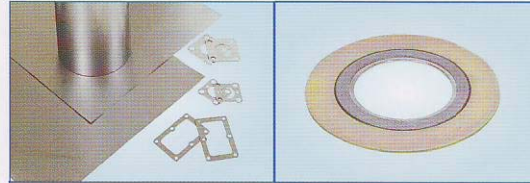
## PIPING



Type 4811  
4812

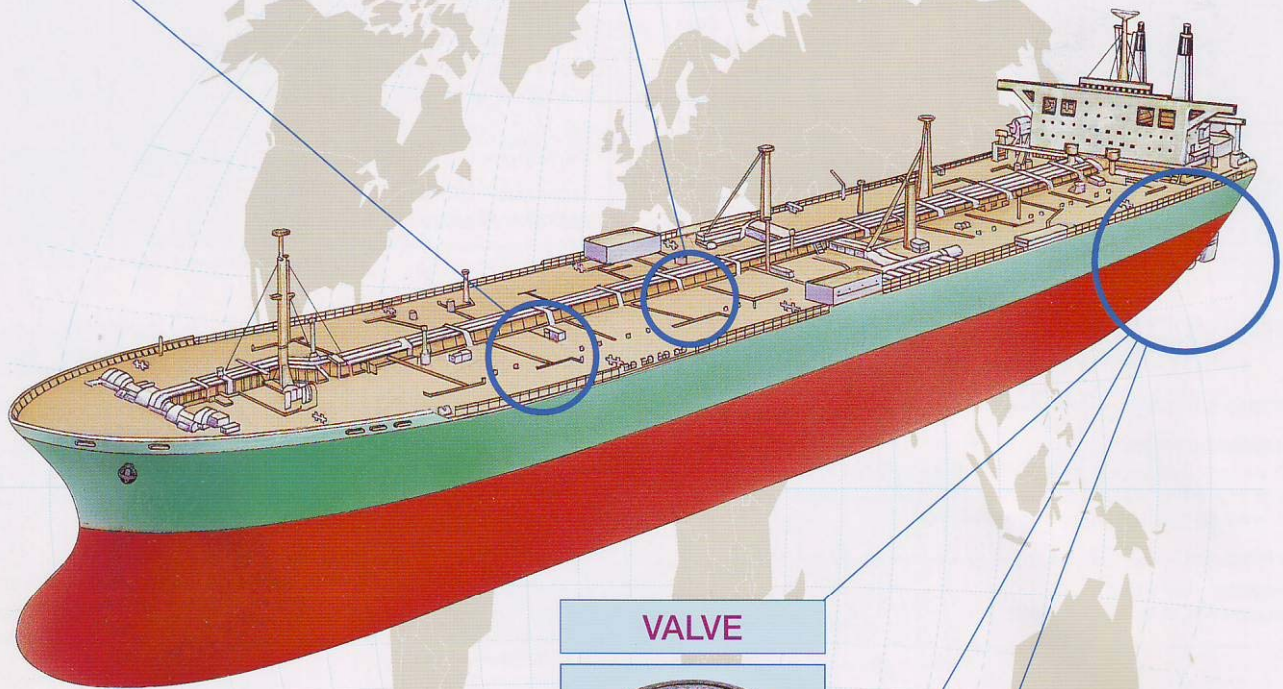
Type 4650(H)

## PIPING



Type 6633

Type 2600



## VALVE



Type 6711

## PUMP



Type 6521L

Type US-1,2,3

Type PMC

## STERN TUBE



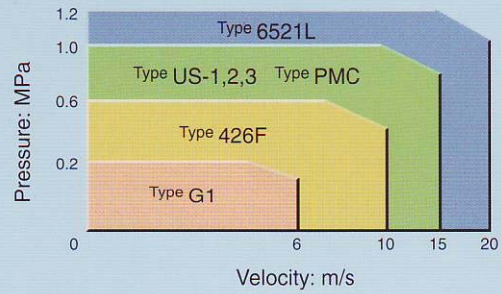
Type 6521L

Type 426F

Type G1



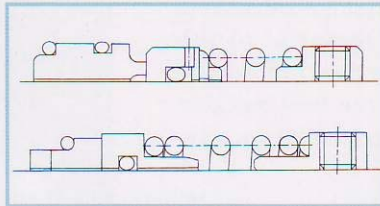
## Selection of seal and packing for pump



## Mechanical Seals

### Type US-1,2,3

#### Marine Standard Seal



#### Features & Benefits

##### Marine standard seal

This seal is designed to have dimensions meeting the corresponding requirements of standards established by Japanese Marine Equipment Association. In order to prevent corrosion by sea water, it is furnished with mating face of plasma flame fusible ceramics.

#### Performance

Pressure: 1.0MPa, Velocity: 15m/s, Size:  $\phi$ 20-130 (US-1),  $\phi$ 20-180 (US-2, US-3) Application: Water, Sea water

Type US-1 Code: MS-CCU30-DAP00 - (Size), Ceramic vs Carbon & NBR, 316 SS  
 Type US-2 Code: MS-CCU70-DAP00 - (Size), Ceramic vs Carbon & NBR, 316 SS  
 Type US-3 Code: MS-CCU70-DAP00 - (Size), Ceramic vs Carbon & NBR, 316 SS

### Type PMC

#### Rotating clutch-type seal

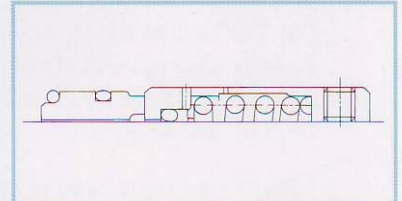
#### Features & Benefits

##### For cargo pump

Since cargo pumps are comparatively large in size, forced driving system is applied for seal ring drive.

#### Performance

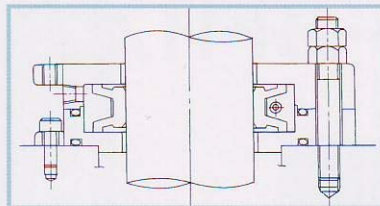
Pressure: 1.0MPa, Velocity: 15m/s, Size:  $\phi$ 40-130  
 Application: Cargo pump



Code: MS-PPU30-DAP21 - (Size), Ceramic vs Carbon & NBR, 316 SS

### Type G1

#### Rubber End-face type Seal



#### Features & Benefits

##### Simplified U-shape rubber seal

The mechanical seal of this type is an end face type seal which uses the simplified U-shape rubber. It is designed compactly so that it enable to be installed in small space. Also it provides the excellent follow-up performance against the axial movement.

#### Performance

Pressure: 0.2MPa, Velocity: 6m/s, Size:  $\phi$ 80-990 (G1-PRS),  $\phi$ 50-450 (G1-STB) Application: Rudderstock, Stern tube

Code: MS-G1 - (Type) - (Size), Special rubber vs Ceramic & Fluoro Elastomer, Bronze

## Gland Packings

### Type 6521L\*

#### Carbonized fiber packing

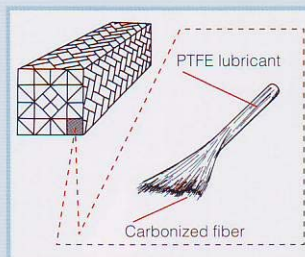
#### Features & Benefits

##### For General Pump

This is made of carbonized fiber impregnated with PTFE dispersion, and lattice braided with special lubricant. This has much enhanced performance than our popular type 6501L. This packing can accommodate big pressure fluctuation, so can be used widely in rotating/reciprocating equipment.

#### Performance

Temperature: 200°C, Pressure: 1.2MPa, Velocity: 20 m/s,  
 PV value: 9.8MPa·m/s  
 Application: Sea water pump

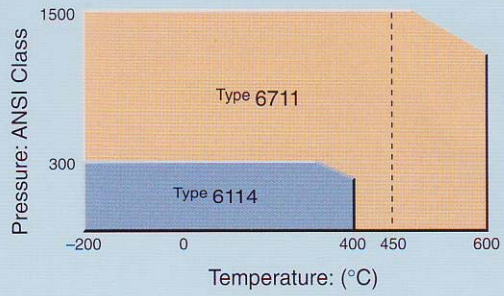


\*Cooling is required for liquid over 80°C

Code: GP-6521L - (Size)



## Selection of valve packing

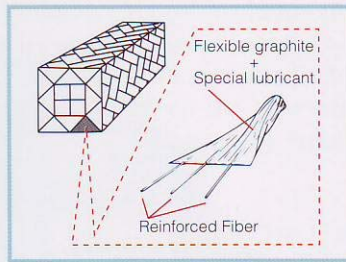


### Type 6114\*

#### Pillarfoil® Braided Packing (Mark VII)



Code: GP-6114 - (Size)



##### Features & Benefits

##### Non-metal Valve Packing for Low Torque

This is a square braided packing, consists of the Pillarfoil® and the inner is reinforced by organic fiber. It's non-metallic packing, impregnated with special lubricant to give the low sliding resistance and excellent sealing properties.

(US 5370405 EP 466923 KR 74981 Canada 2029303 Ireland 71684)

##### Performance

Temperature: -200-400°C (Packing area up to 350°C)  
Pressure: ANSI Class 300, Application: Valve

### Type 6711\*

#### Pillarfoil® Braided Packing (Mark III®)



##### Features & Benefits

##### For high temperature & pressure valve

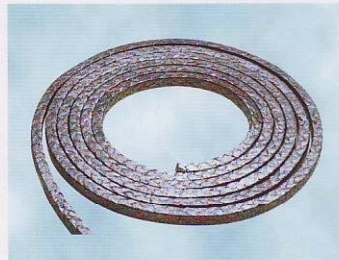
This is Pillarfoil® packing reinforced by inconel wire. It's recommended in high temperature and high pressure valves.

(US4705722, EP253031, KR42430)

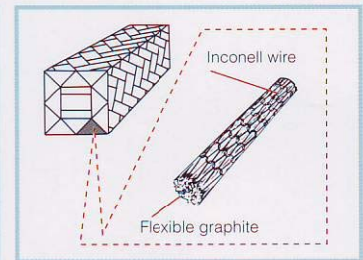
##### Performance

Temperature: -200-600°C, Pressure: ANSI Class 1500  
Application: High temperature and high pressure valve

\*Maximum Temperature in oxidizing atmosphere : 450°C



Code: GP-6711 - (Size)

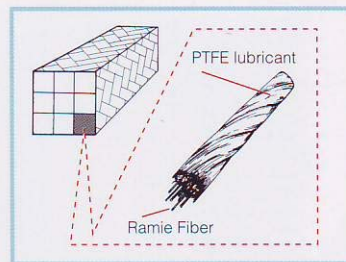


### Type 426F

#### Pilaflon® Ramie packing



Code: GP-426F - (Size)



##### Features & Benefits

##### For stern tube

The packing of this type is a square braided packing which consists of finest ramie fiber impregnated with PTFE dispersion and lubricant. As stern tube packing or pumps packing, it is used widely.

##### Performance

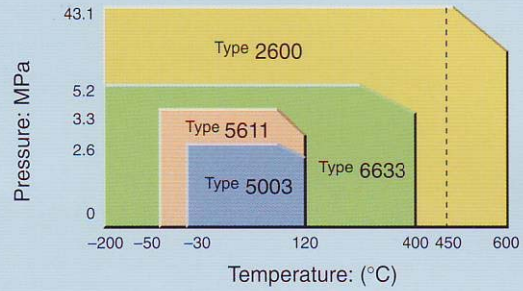
Temperature: 80°C, Pressure: 0.6MPa, Velocity: 10m/s, PV value: 3.4MPa·m/s  
Application: Sea water, Stern tube



\* These products have gotten the patent



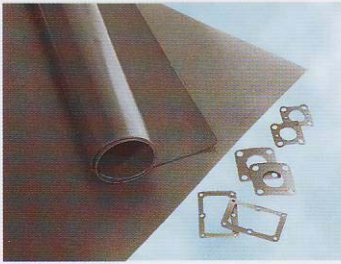
## Selection of gasket



## Gaskets



### Type 5003

#### Aramid fiber hybrid rubber sheet



Code: VG-5003 - (thickness) × (width) × (length)



 Rubber particles  
 Short Aramid fibers

#### Features & Benefits

##### Hybrid rubber sheet gasket

This is aramid fiber hybrid rubber sheet gasket. It has superiority in sealability, no permeation leakage, excellent reversion for compressibility and minimized stress relaxation.

#### Performance

Temperature: -30~120°C, Pressure: 2.6MPa  
Application: Flanges for pipe, Equipment

### Type 5611

#### Non Asbestos Joint Sheet (for general application)

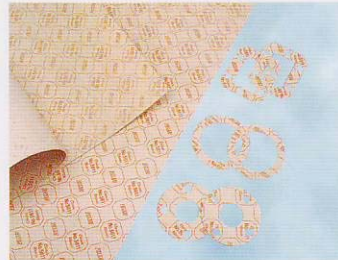
#### Features & Benefits

##### For general application

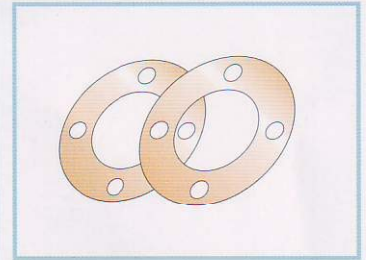
High strength synthetic fiber, inorganic fiber and NBR are combined evenly, and formed into sheet.

#### Performance

Temperature: -50~120°C, Pressure: 3.3MPa  
Application: Flanges for pipe, Equipment

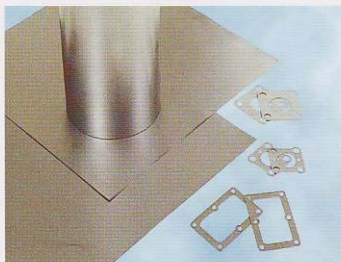


Code: VG-5611 - (thickness) × (width) × (length)

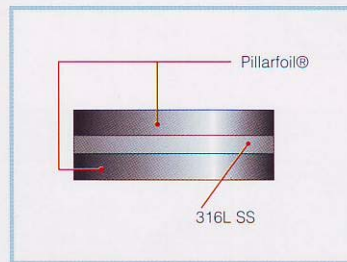


### Type 6633

#### Metalfoil inserted Pillarfoil® Sheet



Code: VG-6633 - (thickness) × (width) × (length)



#### Features & Benefits

##### Flexible Graphite sheet reinforced by stainless steel foil

This has superior heat resistance and flexibility as well as sealability, and easy to handle.

#### Performance

Temperature: -200~400°C, Pressure: 5.2MPa (ANSI Class 300)  
Application: Flanges for pipe, Equipment

### Type 2600

#### Pillarfoil® spiral wound gasket

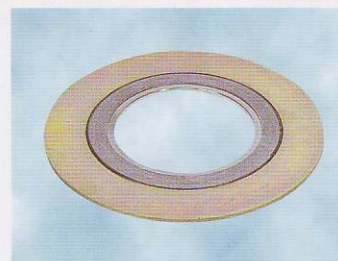
#### Features & Benefits

##### Spiral wound gasket using Pillarfoil® filler

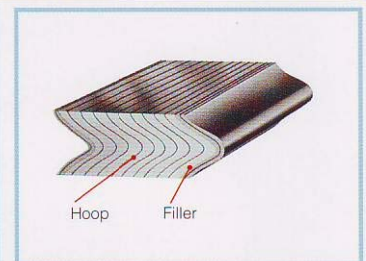
It is superior in gas sealability, heat resistance and chemical resistance. It can be used in vacuum, LNG, nuclear application as well as general application.

#### Performance

Temperature: -200~600°C (450°C for oxidizing atmosphere)  
Pressure: 43.1MPa (ANSI Class 2500)  
Application: Flanges for pipe, Equipment



Code: Standard  
With inner ring  
With inner/outer ring



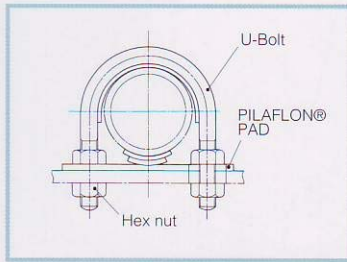
VG-2600-EEO-ANSI (Size) LB-00"  
VG-2601-EEO-ANSI (Size) LB-00"  
VG-2603-EEE-ANSI (Size) LB-00"



## PTFE Products

### Type 4811, 4812

#### Pilaflon® U-bolt and pad



Code: PF-4811-U - (number)  
PF-4812-P - (number)

#### Features & Benefits

##### To accommodate relative movement of piping

Filled PTFE is fitted firmly on the pipe-contacting face of U-bolt. Size is available of 1-1/4"-36" as standard. Electroconductive type is used for marine piping.

#### Performance

Temperature: -200~260°C  
Application: Pipe support

### Type 4650(H)

#### AC Bolts

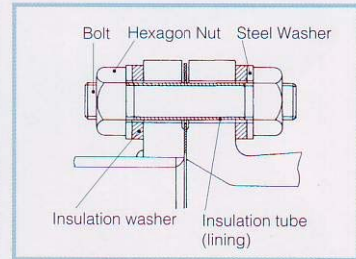
#### Features & Benefits

##### Lined with hard Pilaflon®

With insulation washers and gaskets, it is to prevent galvanic corrosion which may be generated on different metal flanges. PFA insulation diameter is smaller than thread diameter, so enabling easy insertion work.

#### Performance

Temperature: -196~200°C  
Application: Flanges for pipe, Equipment



Code: PF-4650(H)-ANSI (Size) LB - (Size)

