PILLAR CLEAN SAFETY FRONTIER

PILAFLON™

PILLAR Corporation

Overview of PILAFLON™

Polytetrafluoroethylene (PTFE) is a rare plastic material that has characteristics such as low friction, chemical resistance, heat resistance, and insulating capability at high levels. PTFE is an indispensable material in a wide range of industries.

PILLAR Corporation handles PTFE in the following ways:
① We can propose optimum properties using various fillers.
② We provide total services from mixing and dispersing raw materials through to molding, firing, processing, and quality control.
③ We have design technologies based on a large number of achievements and a wealth of experience.

Taking advantage of these technologies in a “Trinity” manner, our products help our customers resolve their issues with a variety of devices, such as pneumatic and hydraulic static devices and reciprocating devices.

PILAFLON™ is a generic name or registered trademark of applied products that use PILLAR Corporation’s PTFE as base materials.

Main characteristics of PTFE

The table below shows the main characteristics of PTFE.
(These characteristics differ according to the application. This means that PILAFLON products do not necessarily provide all of these characteristics.)

Chemical stability	Low coefficient of friction	Low permittivity
Thermal stability	Non-adhesiveness	Fire resistance
Purity	Weather resistance	Non-water absorbent

Main PILAFLON™ fillers

Filler name	Filler characteristics
Glass fiber	Enhances mechanical strength and cold flow resistance
Carbon fiber	Enhances mechanical strength
Carbon black	Used as solid lubricant to enhance sliding characteristics
Heat-resistant resin	Enhances strength and wear resistance
Molybdenum disulfide	Used as solid lubricant to enhance sliding characteristics

INDEX

Product guide

* The PILAFLON™ products shown on this brochure are application examples of PTFE.
For materials for machining (such as round bars), molding using special fillers, or other information, please contact us.

Product guide

List of main PILAFLON™ materials and characteristics

The main PILAFLON materials are introduced below.
＊ Material selection is an important point in use of PILAFLON products. Please consult with us in advance regarding selection.

Material symbol	Main filler	Features
W2	No filler	This product provides excellent cleanliness, chemical resistance, and insulating capability.
G2	Glass fiber (Filler content: Low)	Because high-strength, high-toughness glass fiber is used as a filler, dimensional stability and cold flow resistance improve in proportion to filler content. On the other hand, characteristics such as adaptivity decrease.
G3	Glass fiber (Filler content: High)	
H3	Glass fiber Molybdenum disulfide	This product is suitable for sliding materials due to cold flow resistance characteristics acquired by injecting glass fibers, as well as low friction and abrasion acquired by injecting molybdenum disulfide.
H4A	Heat-resistant resin	The H4 series is formulated with heat-resistant resin with excellent strength and wear resistance to enhance wear resistance while maintaining the flexibility of PTFE. This series includes the high-strength H4F, which is formulated with carbon fibers, and the low-friction H4C and H4R, formulated with carbon-based solid lubricant.
H4C	Heat-resistant resin Carbon black	
H4F	Heat-resistant resin Carbon fiber Graphite powder	
H4R	Heat-resistant resin Graphite powder	
D5	Bronze powder Molybdenum disulfide	This material is a self-lubricating, sliding material grade product filled with bronze powder and molybdenum disulfide with excellent heat dissipation. It satisfies both wear resistance and hardness/strength.
R2	Carbon black Glass fiber	R2 and R3 are filled with carbon black to enhance sliding characteristics. (Moreover, R2 employs glass fibers to enhance cold flow resistance characteristics.)
R3	Carbon black	
R4	Carbon fiber	R4 is filled with carbon fibers to improve cold flow resistance and strength in high temperature conditions, while maintaining the maximum characteristics of PTFE.
Y2A	Heat-resistant resin	This material provides excellent sliding characteristics in dry conditions and its aggression to mating materials is especially low.
F501	Special carbon	This product is uniquely formulated with special carbon to dramatically enhance wear characteristics.
F536	Special filler	This product is uniquely formulated with a special filer to dramatically reduce aggression to mating materials. This is a white material that can slide on soft metal materials that cannot be used with PTFE filled with conventional glass fibers and that can be used without damaging stainless steel surfaces.

List of main PILAFLON™ materials and characteristics

[Please refer to this list in conjunction with the features shown on page 1.]

Hue	Specific gravity	Coefficients of linear thermal expansion	Tensile strength	Elongation	Compressive strength	Compression elastic modulus	Hardness	Material symbol
	—	$\times 10^{-5}$/℃	N/mm^2	%	N/mm^2	$\times 10^3$N/mm^2	—	
White	2.18	MD13.4 CD12.0	CD27.4	CD310	MD5.2	MD0.4	Durometer D55	W2
Grayish white	2.24	MD13.2 CD7.5	CD20.6	CD265	MD7.0	MD0.8	Durometer D62	G2
Grayish white	2.25	MD12.3 CD6.1	CD15.7	CD235	MD8.4	MD1.0	Durometer D64	G3
Grayish black	2.29	MD14.0 CD7.7	CD18.5	CD273	MD8.1	MD0.9	Durometer D67	H3
Beige	2.07	—	CD20.1	CD265	—	—	Durometer D65	H4A
Grayish black	1.88	MD8.9 CD7.9	CD9.9	CD159	MD9.3	MD1.1	Durometer D68	H4C
Grayish black	1.98	MD15.5 CD8.0	CD13.8	CD166	MD8.5	MD0.85	Durometer D65	H4F
Grayish black	2.00	—	CD15.7	CD230	—	—	Durometer D64	H4R
Copper black	4.07	MD11.1 CD9.3	CD15.7	CD127	MD7.3	MD0.75	Durometer D69	D5
Black	2.24	MD13.6 CD7.9	CD14.3	CD229	MD8.7	MD1.0	Durometer D68	R2
Black	2.13	MD12.1 CD7.3	CD14.7	CD111	MD9.6	MD1.1	Durometer D71	R3
Black	2.05	MD14.3 CD4.9	CD16.9	CD224	MD9.4	MD0.95	Durometer D67	R4
Ocher	1.95	MD15.0 CD14.0	CD17.1	CD235	—	—	Durometer D65	Y2A
Black	1.85	MD9.4 CD8.0	CD19.0	CD74	—	—	Durometer D69	F501
White	2.12	MD11.2 CD8.2	CD18.9	CD268	—	—	Durometer D65	F536

Notes: 1) The values shown in the table above are typical values of measured data, not specifications.
2) “Compressive strength” indicates stress values that are applicable when the strain rate is 1%.
3) “MD” and “CD” in each data item indicate measured values in the molding direction and a direction perpendicular to the molding direction, respectively.

PILAFLON™ rod packing

Reciprocating machine

This product is an oil-free, non-lubrication shaft seal for use in gland sections of reciprocating compressors or various reciprocating machines or pneumatic machines.
Generally, a “three-split type + radial cut” or “six-split type + radial cut” rod packing and a garter spring are used as a set.

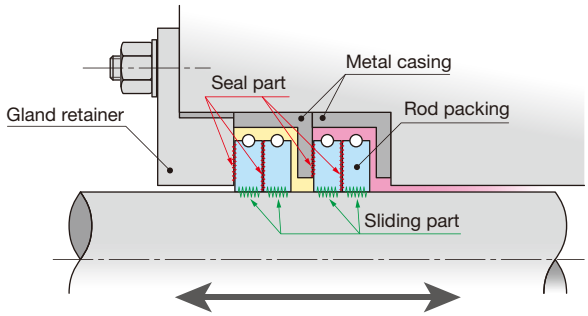
Features

- This product, including the spring, has a split structure, enabling the seal parts to be maintained without disassembling the machine.
- This product is structured to have its spring hold the shaft, providing excellent shaft runout followability, compared to other gland section sealing methods such as gland packings.
- This product provides a high degree of freedom for material selection and structure, enabling both long service life and sealability to be achieved by designing the packing optimally according to the operating conditions.

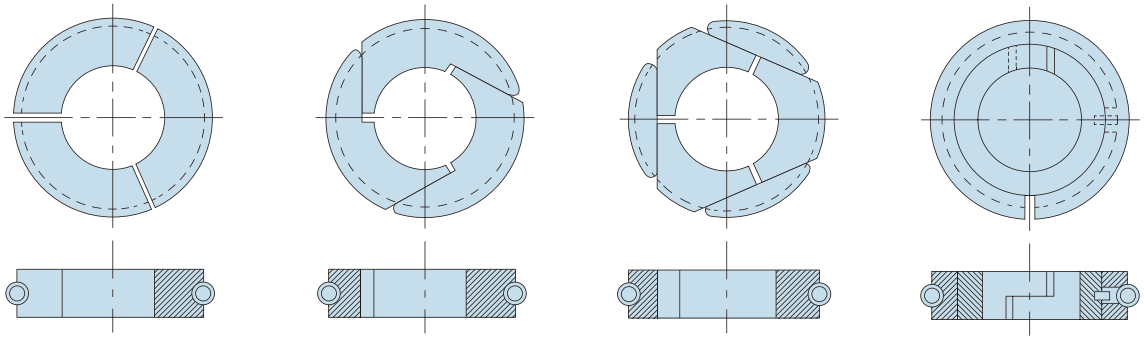
■Specification conditions

Maximum operating temperature	Maximum operating pressure	Maximum speed
200℃	2.9MPaG	4m/s

Image of rod packings mounted on pneumatic machine for reciprocation movement



Rod packing types



P/#4391
[Radial cut three-split type]

P/#4392
[Tangential cut three-split type]

P/#4393
[Six-split type]

P/#4394
[Inner/outer type]

・Rod packings are broadly divided into the above four types in terms of shape. Generally, P/#4391 + P/#4392, P/#4392 × 2, and P/#4391 + P/#4393 are used in combination.

<Note when considering rod packings>
When sealing the gland section with a rod packing, you must design a total sealing process for the gland section, including material selection and combination.
○For this reason, please present machine conditions, requirement specifications, and other necessary information in advance.

No.4370, No.4371, No.4375

PILAFLON™ piston ring/rider ring

Reciprocating machine

This product is an oil-free, non-lubrication seal for use in piston sections of reciprocating compressors or various reciprocating machines or pneumatic machines.
The piston ring seals out fluid, and the rider ring corrects piston runout.

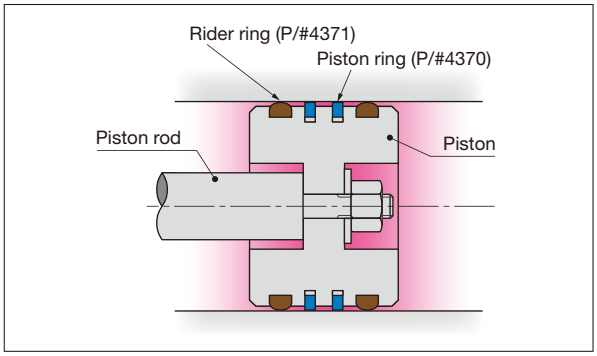
Features

- Compared to carbon-based and phenolic resin-based rings, this product causes little wear associated with gases and provides excellent non-brittleness.
- This product provides excellent sliding characteristics and wear resistance.
  (Best suited for oil-free reciprocating compressors)
- Optimum PILAFLON materials can be selected according to the operating conditions and fluid.

■Specification conditions

Maximum operating temperature	Maximum operating pressure	Maximum speed
200℃	9.8MPaG	4m/s

Image of piston ring and rider ring mounted



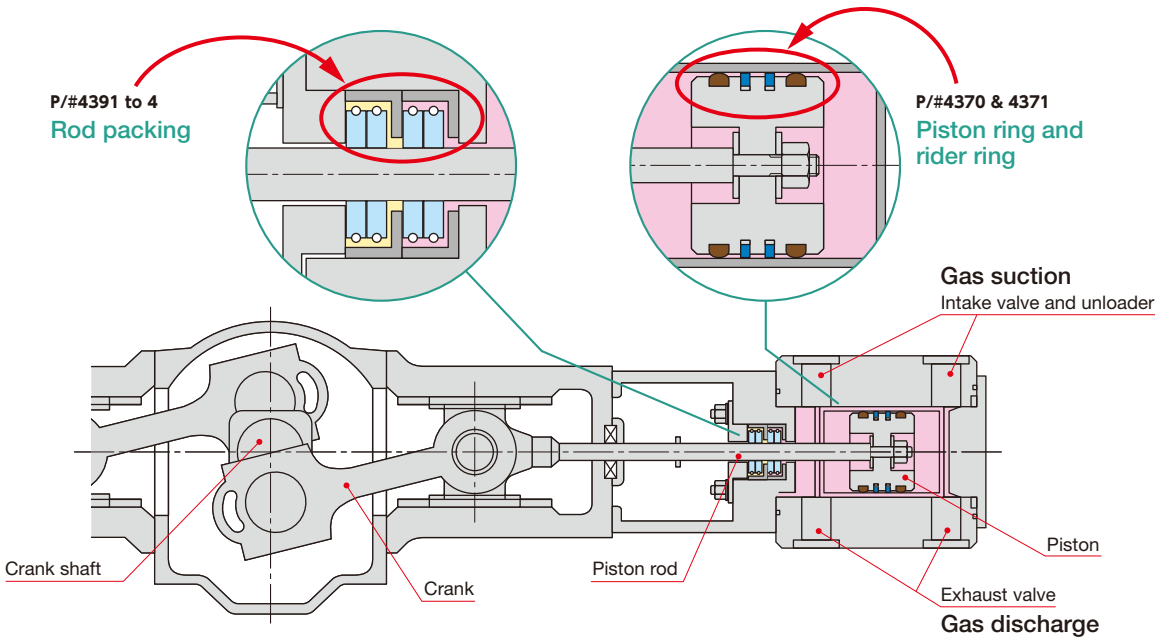
∗ For rider rings, P/#4375 with the inner circumference reinforced with metal is also available.

Main PILAFLON materials

PILAFLON symbol	Main fillers	Main characteristics	Fluid/application
H3	Glass fiber and molybdenum disulfide	Low friction and heat generation	For general use
D5	Bronze powder and molybdenum disulfide	Low compressive strain	For high-pressure, high-PV use
G3	Glass fiber	Oxidation resistance and fire resistance	For use in oxygen
R3	Carbon black	Chemical resistance	For use in various chemical gases
H4C	Heat-resistant resin and carbon black	Wear resistance and mechanical strength	For use in high-PV conditions
H4F	Heat-resistant resin, carbon fiber, and graphite powder	Wear resistance and mechanical strength	For use in high-PV conditions
F501	Special carbon	Wear resistance	For use in dry gas, high-PV conditions

This table applies to both the rod packing and the piston ring and rider ring.

Outline drawing of reciprocating compressor



Fluorocarbon polymers

No.4368

PILAFLON™ HiP seal

Static device | Reciprocating machine | Low-speed rotary machine

This product is a self-sealing seal that has a built-in spring in a PILAFLON seal ring, simultaneously providing the excellent sliding characteristics of PTFE and followability based on the built-in spring. This product is a seal that can be used with groove dimensions equivalent to those of O-rings made of elastomer, that can be compactly configured for seal parts, and that can be widely handled as a gasket for static apparatuses or as a shaft seal part for reciprocating machines and low-speed rotary machines.

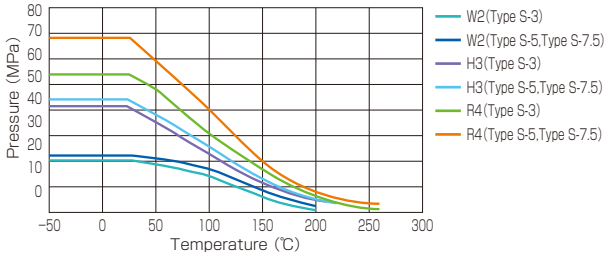
Features

- This product can be applied within a wide range of temperatures, from very low temperatures to high temperature areas in which it is difficult for O-rings made of elastomer to be applied.
- This product is resistant to heat cycles and provides long-term, stable sealing performance.
- This product provides higher sealing performance with lower sliding resistance than PTFE V-rings.
- This product can be designed with a high degree of freedom so that an optimum balance between sealability and longevity can be obtained according to the operating conditions or application.

■Specification conditions

Model	Maximum operating temperature	Maximum operating pressure	Maximum speed
Type 10 Type 20	200℃	25.5MPaG 68.6MPaG	1m/s

Type 20 HiP seal pressure resistance limit (in a stationary state)

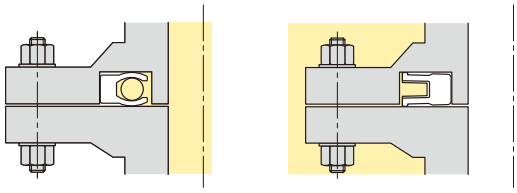


Main PILAFLON materials

PILAFLON symbol	Main fillers	Characteristics
W2	No filler	Suitable for very low temperatures and provides excellent sealability
H3	Glass fiber and molybdenum disulfide	Can be used as both sliding and fixed materials
R4	Carbon fiber	Suitable for high-temperature, high-pressure applications
H4A	Heat-resistant resin	Excellent sliding characteristics
Y2A	Heat-resistant resin	Excellent sliding characteristics and less damage to mating materials

Structures/types

[Static device]

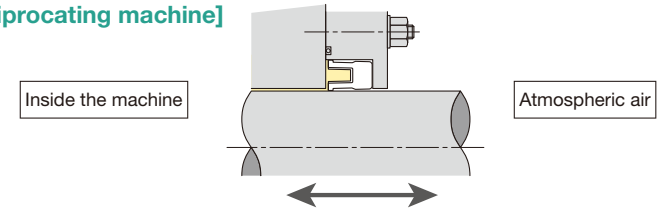


(Internal pressure application) (External pressure application)

Suitable applications

- Sealing out very low temperature fluids
- Sealing portion where sufficient tightening surface pressure cannot be obtained because of design constraints
- Sealing portion where high chemical resistance is required
- Need for contamination countermeasures

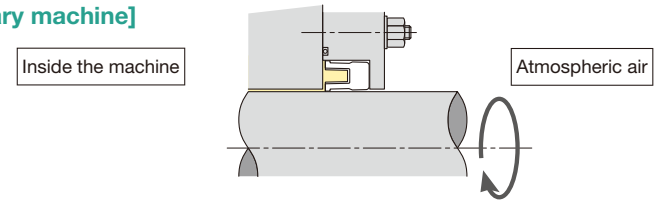
[Reciprocating machine]



Suitable applications

- When the use of an O-ring alone or O-ring + slipper ring causes problems with sealability, longevity, abrasion on mating materials, etc.

[Rotary machine]



Suitable applications

- When compactness must satisfy both sealability and longevity to some extent
- When another shaft seal is used as the main seal and this product must be effectively used as an auxiliary seal

<Note when considering HiP seals>

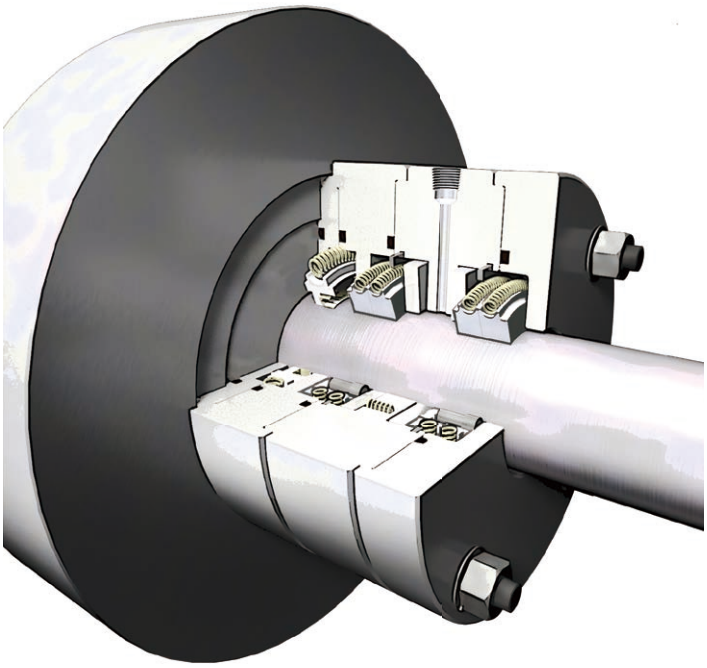
To use HiP seals under optimum conditions, custom design is required according to the operating environment.
○For this reason, please present machine conditions, requirement specifications, issues with the current product, and other necessary information in advance.

Fluorocarbon polymers

No.4392S

PILAFLON™ segment seal unit

Low-speed rotary machine | Rotary machine for powder



This segment seal unit is a shaft seal for large rotary machines such as dryers and kneaders, based on rod packing for reciprocating machines.
This unit mainly seals out powder and fluids for purging powder. It can also be used for rotary machines with greater shaft runout or shaft elongation than that of shaft sealing methods such as mechanical seals or gland packings.

Features

- Because this product is not secured on a shaft or casing, it does not wear the shaft or sleeve, flexibly handling shaft runout, elongation, vibration, and other events.
- This product, including its spring part, has a split form, making replacement easy.
- PILAFLON enables this product to be used in a non-lubrication manner, keeping internal fluid free from contamination, which is advantageous for contamination countermeasures.

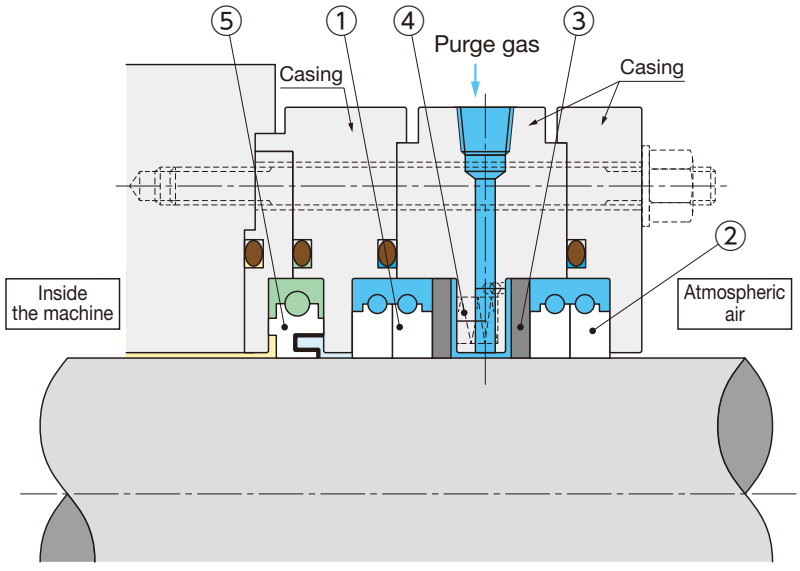
■Specification conditions

Maximum operating temperature	Maximum operating pressure	Maximum speed
180℃	0.1MPa	2.5m/s

Application examples of gland seals for rotary machines for powder

Suitable applications and devices

- Rotary machines for powder, such as rotary valves and dryers
- Low-speed rotary machines handling resin powder, elastomer materials, etc.
- Vertical type mixers, reaction tanks, etc.



(For casings, a two-split structure can also be selected.)

Functions of each component

① **Segment seal (A)**
This is the 4392S main seal. It has a function that uses purge gas to prevent leakage of substances in a canister.
This seal is structured to rotate together with the shaft and slide on the segment seal end face and casing or the spring retainer, which means that it causes little aggression to the shaft.

② **Segment seal (B)**
This seal has the same function as that of ① above. It prevents purge gas from leaking into the atmosphere.

③ **Spring retainer**
This component has no sealing function.

④ **Spring**
This spring presses the segment seal against the casing through the spring retainer to prevent a gap from appearing on the sealing surface when shaft runout or elongation occurs.

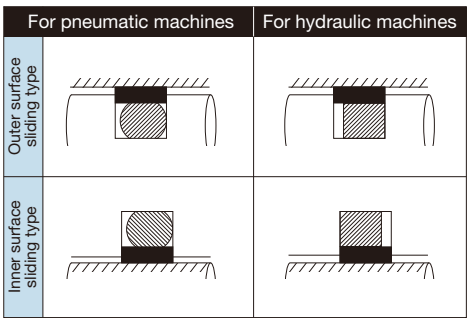
⑤ **HiP seal**
This seal limits the amount of fluid in contact with the segment seal to enhance the performance and longevity of the main seal (segment seal).

Fluorocarbon polymers

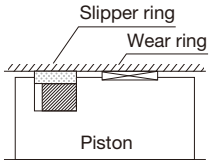
No.4376

PILAFLON™ slipper ring

Hydraulic machine | Pneumatic machine



Mounting example



This product is a sealing part for reciprocation movement that is equipped with the self-lubricating capabilities of PILAFLON and elasticity of elastomer.
It can be used as a seal for a wide range of pistons, regardless of hydraulic or pneumatic cylinders.
For pneumatic machines, “PILAFLON + O-ring” is selected. For hydraulic machines, “PILAFLON + square ring” is selected.

Main PILAFLON™ materials

PILAFLON symbol	Filler	Characteristics
Y2A	Heat-resistant resin	Excellent wear resistance under non-lubrication conditions and causes no damage to mating materials
G2	Glass fiber	Excellent wear resistance in oil
R4	Carbon fiber	Excellent cold flow resistance and non-brittleness under high pressure

Specification conditions

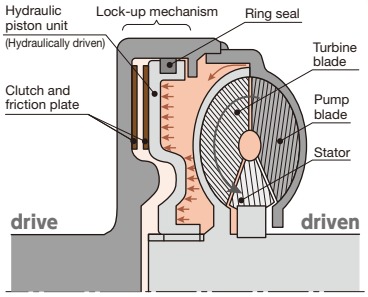
	Maximum operating temperature	Maximum operating pressure	Maximum speed
For pneumatic machines	180℃	2.0MPa	0.5m/s
For hydraulic machines		20.6MPa	2.0m/s

Fluorocarbon polymers

No.4377

PILAFLON™ ring seal

Torque converter



Conceptual diagram of torque converter
(with lock-up clutch mechanism)

This product is a sealing part made of PILAFLON that seals torque converters, hydraulic clutches, fluid couplings, and other devices that use fluids.
Unlike metal ring seals, this ring seal provides advantages originating from PILAFLON, such as prevention of abrasion or damage to shafts and housings.

Specification conditions

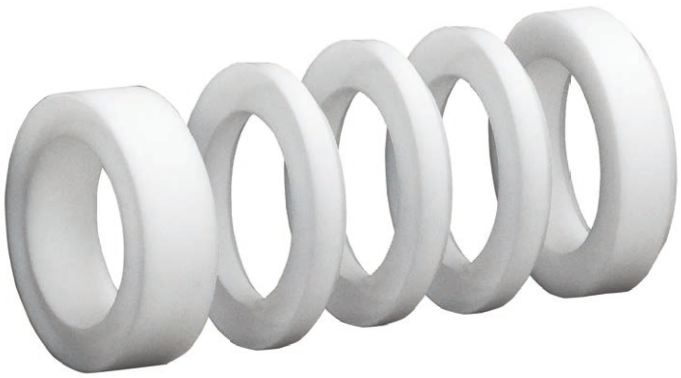
PILAFLON symbol	Maximum operating temperature	Operating pressure	PV value
H3	120℃	2.0MPaG max.	980MPaG·cm/s max.
D5		2.0MPaG to 2.9MPaG	980 to 2940MPaG·cm/s
R4		2.9MPaG max.	4410MPaG·cm/s max.

Fluorocarbon polymers

No.4360S

PILAFLON™ V-ring

Valve | Plunger pump



This product is a V-shaped PILAFLON packing that causes internal pressure to move the lip.
This is a self-sealing seal that provides the chemical resistance and sliding characteristics of PILAFLON, as well as low-tightening and low-friction characteristics.

Main PILAFLON™ materials

PILAFLON symbol	Filler	Characteristics
W2	No filler	Made of filler-free PTFE to satisfy both purity and slidability
H3	Glass fiber Molybdenum disulfide	Effective when both wear resistance and high slidability must be satisfied
R4	Carbon fiber	Recommended when cold flow resistance such as high-temperature, high-pressure tolerance is required

Specification conditions

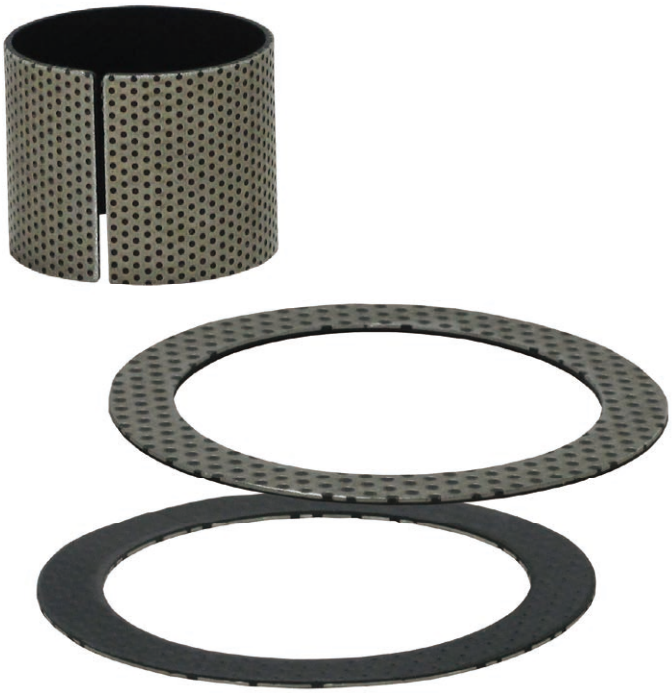
PILAFLON symbol	Maximum operating temperature	Maximum operating pressure	Maximum speed
W2	−70 to +100℃	7.0MPaG	0.5m/s
H3	−30 to +150℃	15.0MPaG	
R4	−30 to +200℃	20.0MPaG	

Fluorocarbon polymers

No.4822, No.4828

Valve | Hydraulic machine | Pneumatic machine

PILLAR LBP curl bearing and PILLAR LBP thrust bearing



This product is a dry plain bearing that is manufactured by joining PILAFLON firmly onto stainless steel perforated sheet metal and cutting and curling it to a specified size.
Our product lineup also includes thrust bearings.
The original bearing plate is made up of only perforated sheet metal and PILAFLON without using an epoxy adhesive or similar agent, which means that it provides excellent chemical resistance.

Features

- The product can be used even under high surface pressure conditions.
- Because the coefficient of friction is small, stick slips barely occur.
- Because of its thin-walled design, this product can be compactly designed.

■Specification conditions

Operating temperature	Allowable surface pressure
−200℃ to +200℃	70MPa

Allowable surface pressure for LBP curl bearing (speed: 1 cm/s or less)

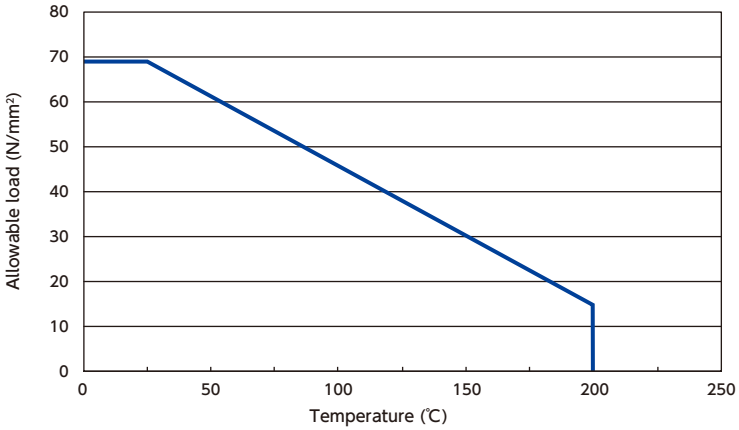
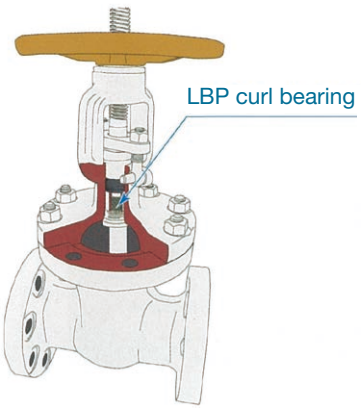


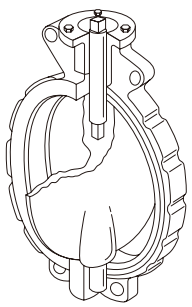
Image of LBP curl bearing mounted on bearing



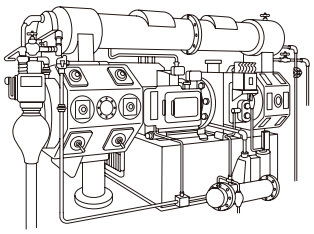
Applications

- Applications that cannot use lubricating oil (oil-free type)
- Applications requiring labor-saving for lubrication
- Applications requiring simplified machine structure
- Applications involving repeated starting and stopping
- Various types of valves
- Hydraulic machines
- General industrial machinery
- Machine tools
- Construction machinery

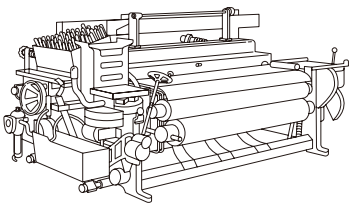
etc.



Valve



Pneumatic machine



Textile machinery

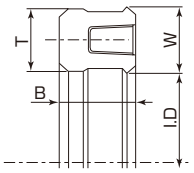
No.4368

PILAFLON™ HiP seal

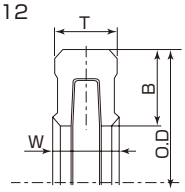
PILLAR No.4368

Type and cross-section

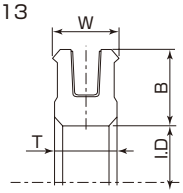
Type 10



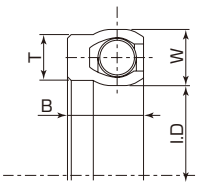
Type 12



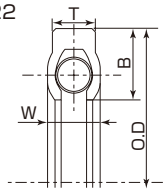
Type 13



Type 20



Type 22



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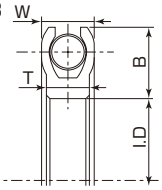
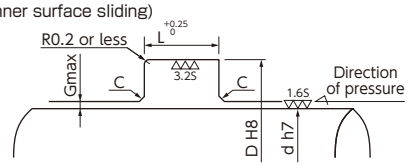


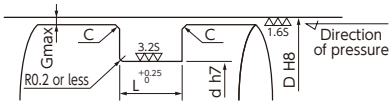
Type		S-3	S-5	S-7.5	S-5	S-7.5	S-5	S-7.5
Nominal size range		15 to 75	25 to 150	60 to 400	50 to 150	150 to 400	50 to 150	150 to 400
Types 10 to 13	W	3.8	6.2	8.9	6.2	8.9	6.2	8.9
Types 10 to 13	B	4.2	6.7	10	6.7	10	6.7	10
Types 10 to 13	T	2.8	4.8	7.3	4.8	7.3	4.8	7.3
Types 20 to 23	W	3.3	5.7	8.4	5.7	8.4	5.7	8.4
Types 20 to 23	B	4.2	6.7	10	6.7	10	6.7	10
Types 20 to 23	T	2.7	4.8	7.2	4.8	7.2	4.8	7.2
Mounting groove	H	–	–	–	5	7.5	5	7.5
Mounting groove	L	4.7	7.5	11	7.5	11	7.5	11
Mounting groove	Gmax	0.08	0.10	0.14	0.1	0.14	0.1	0.14

Mounting groove cross-section

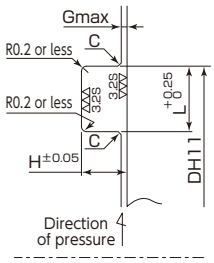
(Inner surface sliding)



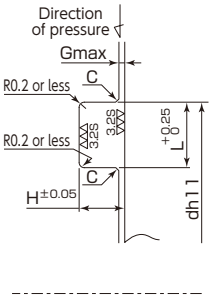
(Outer surface sliding)



(For internal pressure)



(For external pressure)



PILLAR No.4368 S-3 type

(Unit: mm)

Bearing number	Type 10 / Type 20			
	HiP seal inside diameter		Mounting groove	
	Type 10 I.D	Type 20 I.D	Inside diameter d	Outside diameter D
S-3-15	14.2	14.7	15	21
S-3-16	15.2	15.7	16	22
S-3-17	16.2	16.7	17	23
S-3-18	17.2	17.7	18	24
S-3-20	19.2	19.7	20	26
S-3-21	20.2	20.7	21	27
S-3-22	21.2	21.7	22	28
S-3-22.4	21.6	22.1	22.4	28.4
S-3-24	23.2	23.7	24	30
S-3-25	24.2	24.7	25	31
S-3-25.5	24.7	25.2	25.5	31.5
S-3-26	25.2	25.7	26	32
S-3-28	27.2	27.7	28	34
S-3-29	28.2	28.7	29	35
S-3-29.5	28.7	29.2	29.5	35.5
S-3-30	29.2	29.7	30	36
S-3-31.5	30.7	31.2	31.5	37.5
S-3-32	31.2	31.7	32	38
S-3-34	33.2	33.7	34	40
S-3-35	34.2	34.7	35	41
S-3-35.5	34.7	35.2	35.5	41.5
S-3-36	35.2	35.7	36	42
S-3-38	37.2	37.7	38	44
S-3-39	38.2	38.7	39	45
S-3-40	39.2	39.7	40	46
S-3-42	41.2	41.7	42	48
S-3-44	43.2	43.7	44	50
S-3-45	44.2	44.7	45	51
S-3-46	45.2	45.7	46	52
S-3-48	47.2	47.7	48	54
S-3-49	48.2	48.7	49	55
S-3-50	49.2	49.7	50	56
S-3-52	51.2	51.7	52	58
S-3-53	52.2	52.7	53	59
S-3-55	54.2	54.7	55	61
S-3-56	55.2	55.7	56	62
S-3-58	57.2	57.7	58	64
S-3-60	59.2	59.7	60	66
S-3-63	62.2	62.7	63	69
S-3-65	64.2	64.7	65	71
S-3-67	66.2	66.7	67	73
S-3-70	69.2	69.7	70	76
S-3-71	70.2	70.7	71	77
S-3-75	74.2	74.7	75	81

PILAFLON™ HiP seal

PILLAR No.4368 S-5 type

(Unit: mm)

Bearing number	Type 10 / Type 20				Type 12 / Type 22		Type 13 / Type 23	
	HiP seal inside diameter		Mounting groove		HiP	Mounting groove	HiP	Mounting groove
	Type 10 I.D	Type 20 I.D	Inside diameter d	Outside diameter D	Outside diameter O.D	Outside diameter D	Inside diameter I.D	Inside diameter d
S-5-30	28.8	29.3	30	40	—	—	—	—
S-5-31.5	30.3	30.8	31.5	41.5	—	—	—	—
S-5-32	30.8	31.3	32	42	—	—	—	—
S-5-34	32.8	33.3	34	44	—	—	—	—
S-5-35	33.8	34.3	35	45	—	—	—	—
S-5-35.5	34.3	34.8	35.5	45.5	—	—	—	—
S-5-36	34.8	35.3	36	46	—	—	—	—
S-5-38	36.8	37.3	38	48	—	—	—	—
S-5-39	37.8	38.3	39	49	—	—	—	—
S-5-40	38.8	39.3	40	50	—	—	—	—
S-5-42	40.8	41.3	42	52	—	—	—	—
S-5-45	43.8	44.3	45	55	—	—	—	—
S-5-46	44.8	45.3	46	56	—	—	—	—
S-5-48	46.8	47.3	48	58	—	—	—	—
S-5-49	47.8	48.3	49	59	—	—	—	—
S-5-50	48.8	49.3	50	60	60	60	50	50
S-5-52	50.8	51.3	52	62	62	62	52	52
S-5-53	51.8	52.3	53	63	63	63	53	53
S-5-55	53.8	54.3	55	65	65	65	55	55
S-5-56	54.8	55.3	56	66	66	66	56	56
S-5-58	56.8	57.3	58	68	68	68	58	58
S-5-60	58.8	59.3	60	70	70	70	60	60
S-5-63	61.8	62.3	63	73	73	73	63	63
S-5-65	63.8	64.3	65	75	75	75	65	65
S-5-67	65.8	66.3	67	77	77	77	67	67
S-5-70	68.8	69.3	70	80	80	80	70	70
S-5-71	69.8	70.3	71	81	81	81	71	71
S-5-75	73.8	74.3	75	85	85	85	75	75
S-5-80	78.8	79.3	80	90	90	90	80	80
S-5-85	83.8	84.3	85	95	95	95	85	85
S-5-90	88.8	89.3	90	100	100	100	90	90
S-5-95	93.8	94.3	95	105	105	105	95	95
S-5-100	98.8	99.3	100	110	110	110	100	100
S-5-102	100.8	101.3	102	112	112	112	102	102
S-5-105	103.8	104.3	105	115	115	115	105	105
S-5-110	108.8	109.3	110	120	120	120	110	110
S-5-112	110.8	111.3	112	122	122	122	112	112
S-5-115	113.8	114.3	115	125	125	125	115	115
S-5-120	118.8	119.3	120	130	130	130	120	120
S-5-125	123.8	124.3	125	135	135	135	125	125
S-5-130	128.8	129.3	130	140	140	140	130	130
S-5-132	130.8	131.3	132	142	142	142	132	132
S-5-135	133.8	134.3	135	145	145	145	135	135
S-5-140	138.8	139.3	140	150	150	150	140	140
S-5-145	143.8	144.3	145	155	155	155	145	145
S-5-150	148.8	149.3	150	160	160	160	150	150

Note: We can manufacture HiP seal Type 10 with up to minimum nominal size 25.

PILLAR No.4368 S-7.5 type

(Unit: mm)

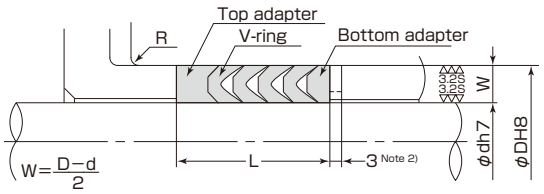
Bearing number	Type 10 / Type 20				Type 12 / Type 22		Type 13 / Type 23	
	HiP seal inside diameter		Mounting groove		HiP	Mounting groove	HiP	Mounting groove
	Type 10 I.D	Type 20 I.D	Inside diameter d	Outside diameter D	Outside diameter O.D	Outside diameter D	Inside diameter I.D	Inside diameter d
S-7.5-150	148.6	149.1	150	165	165	165	150	150
S-7.5-155	153.6	154.1	155	170	170	170	155	155
S-7.5-160	158.6	159.1	160	175	175	175	160	160
S-7.5-165	163.6	164.1	165	180	180	180	165	165
S-7.5-170	168.6	169.1	170	185	185	185	170	170
S-7.5-175	173.6	174.1	175	190	190	190	175	175
S-7.5-180	178.6	179.1	180	195	195	195	180	180
S-7.5-185	183.6	184.1	185	200	200	200	185	185
S-7.5-190	188.6	189.1	190	205	205	205	190	190
S-7.5-195	193.6	194.1	195	210	210	210	195	195
S-7.5-200	198.6	199.1	200	215	215	215	200	200
S-7.5-205	203.6	204.1	205	220	220	220	205	205
S-7.5-209	207.6	208.1	209	224	224	224	209	209
S-7.5-210	208.6	209.1	210	225	225	225	210	210
S-7.5-215	213.6	214.1	215	230	230	230	215	215
S-7.5-220	218.6	219.1	220	235	235	235	220	220
S-7.5-225	223.6	224.1	225	240	240	240	225	225
S-7.5-230	228.6	229.1	230	245	245	245	230	230
S-7.5-235	233.6	234.1	235	250	250	250	235	235
S-7.5-240	238.6	239.1	240	255	255	255	240	240
S-7.5-245	243.6	244.1	245	260	260	260	245	245
S-7.5-250	248.6	249.1	250	265	265	265	250	250
S-7.5-255	253.6	254.1	255	270	270	270	255	255
S-7.5-260	258.6	259.1	260	275	275	275	260	260
S-7.5-265	263.6	264.1	265	280	280	280	265	265
S-7.5-270	268.6	269.1	270	285	285	285	270	270
S-7.5-275	273.6	274.1	275	290	290	290	275	275
S-7.5-280	278.6	279.1	280	295	295	295	280	280
S-7.5-285	283.6	284.1	285	300	300	300	285	285
S-7.5-290	288.6	289.1	290	305	305	305	290	290
S-7.5-295	293.6	294.1	295	310	310	310	295	295
S-7.5-300	298.6	299.1	300	315	315	315	300	300
S-7.5-315	313.6	314.1	315	330	330	330	315	315
S-7.5-320	318.6	319.1	320	335	335	335	320	320
S-7.5-335	333.6	334.1	335	350	350	350	335	335
S-7.5-340	338.6	339.1	340	355	355	355	340	340
S-7.5-355	353.6	354.1	355	370	370	370	355	355
S-7.5-360	358.6	359.1	360	375	375	375	360	360
S-7.5-375	373.6	374.1	375	390	390	390	375	375
S-7.5-385	383.6	384.1	385	400	400	400	385	385
S-7.5-400	398.6	399.1	400	415	415	415	400	400

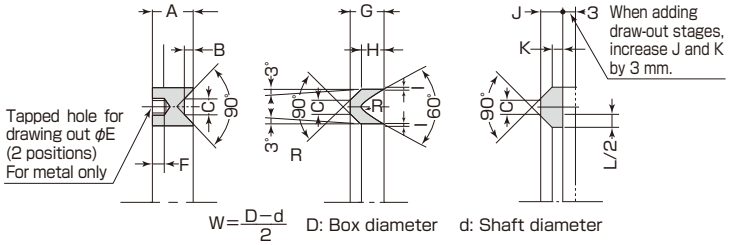
Fluorocarbon polymers

No.4360S

PILAFLON™ V-ring

V-ring set size (VM type)





PILLAR No.4360S

Width W	Number of V-rings (n) and overall length when mounted (L)						△L (✻)
	1	2	3	4	5	6	
2.5	7.2	9.2	11.2	13.2	15.2	17.2	2.0
3.0	8.4	10.6	12.8	15.0	17.2	19.4	2.2
3.5	8.7	11.2	13.7	16.2	18.7	21.2	2.5
4.0	9.6	12.4	15.2	18.0	20.8	23.6	2.8
4.5	10.4	13.5	16.6	19.7	22.8	25.9	3.1
5.0	12.6	15.9	19.2	22.5	25.8	29.1	3.3
5.5	13.4	17.0	20.6	24.2	27.8	31.4	3.6
6.0	14.1	17.9	21.7	25.5	29.3	33.1	3.8
6.5	15.1	19.4	23.7	28.0	32.3	36.6	4.3
7.0	16.1	20.8	25.5	30.2	34.9	39.6	4.7
7.5	17.0	22.1	27.2	32.3	37.4	42.5	5.1
8.0	17.8	23.2	28.6	34.0	39.4	44.8	5.4
8.5	18.6	24.3	30.0	35.7	41.4	47.1	5.7
9.0	19.5	25.5	31.5	37.5	43.5	49.5	6.0
9.5	20.3	26.6	32.9	39.2	45.5	51.8	6.3
10.0	21.0	27.5	34.0	40.5	47.0	53.5	6.5
10.5	21.6	28.1	34.9	41.7	48.5	55.3	6.8
11.0	21.5	28.5	35.5	42.5	49.5	56.5	7.0
11.5	23.3	30.6	37.9	45.2	52.5	59.8	7.3
12.0	24.2	31.8	39.4	47.0	54.6	62.2	7.6
12.5	25.0	32.9	40.8	48.7	56.6	64.5	7.9
13.0	26.7	34.8	42.9	51.0	59.1	67.2	8.1
14.0	28.2	36.8	45.4	54.0	62.6	71.2	8.6
15.0	29.9	39.1	48.3	57.5	66.7	75.9	9.2

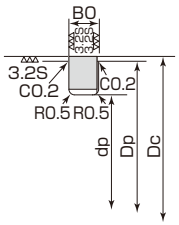
Width W	Top adapter (VMT)				V-ring (VM)				Bottom adapter (VMB)		
	A	B	C (Common)	ΦE-F	G	H	I	R	J	K	L
2.5	3.0	0.6	1.0	—	2.5	1.8	0.2	0.3	2.8	2.0	2
3.0	4.0	0.8	1.0	—	3.0	2.0	0.2	0.3	3.0	2.0	2
3.5	4.0	1.1	1.0	—	3.5	2.3	0.2	0.4	3.3	2.0	2
4.0	4.5	1.3	1.0	—	4.0	2.5	0.3	0.5	3.5	2.0	3
4.5	5.0	1.4	1.0	—	4.6	2.8	0.3	0.7	3.8	2.0	3
5.0	6.0	1.2	2.0	—	4.5	3.0	0.3	0.8	4.5	3.0	3
5.5	6.5	1.4	2.0	M3-3	5.1	3.3	0.3	1.0	4.8	3.0	3
6.0	7.0	1.7	2.0	M3-3	5.5	3.5	0.3	1.0	5.0	3.0	3
6.5	7.5	2.0	2.0	M3-3	6.3	4.0	0.3	1.0	5.3	3.0	4
7.0	8.0	2.2	2.0	M3-3	6.8	4.3	0.4	1.2	5.5	3.0	4
7.5	8.5	2.4	2.0	M4-4.5	7.5	4.7	0.4	1.2	5.8	3.0	4
8.0	9.0	2.1	3.0	M4-4.5	7.5	5.0	0.4	1.2	5.5	3.0	4
8.5	9.5	2.4	3.0	M4-4.5	8.1	5.3	0.4	1.2	5.8	3.0	4
9.0	10.0	2.6	3.0	M4-4.5	8.5	5.5	0.5	1.5	6.0	3.0	4
9.5	10.5	2.8	3.0	M4-4.5	9.1	5.8	0.5	1.5	6.3	3.0	4
10.0	11.0	2.5	4.0	M4-4.5	9.0	6.0	0.5	1.5	6.0	3.0	5
10.5	11.0	2.8	4.0	M6-6	9.6	6.3	0.5	1.5	6.3	3.0	5
11.0	11.0	3.0	4.0	M6-6	10.0	6.5	0.5	1.7	6.5	3.0	5
11.5	11.5	2.7	5.0	M6-6	10.1	6.8	0.5	1.7	7.3	4.0	5
12.0	12.0	2.9	5.0	M6-6	10.5	7.0	0.6	2.0	7.5	4.0	5
12.5	12.5	3.2	5.0	M6-6	11.1	7.3	0.6	2.0	7.8	4.0	5
13.0	13.0	3.4	5.0	M6-6	11.5	7.5	0.6	2.5	9.0	5.0	5
14.0	14.0	3.4	6.0	M6-6	12.0	8.0	0.6	3.0	9.0	5.0	5
15.0	15.0	3.8	6.0	M6-6	13.0	8.5	0.7	3.5	9.5	5.0	6

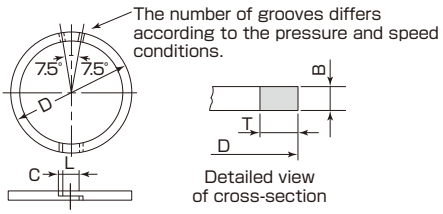
Fluorocarbon polymers

No.4377

PILAFLON™ ring seal

For hydraulic rotation (PR type)





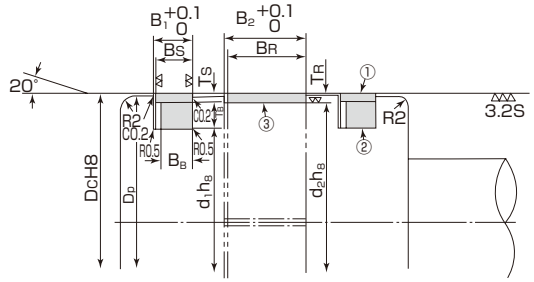
PILLAR No.4377

Nominal diameter	Cylinder and piston				Ring seal								
	Dc H8	Dp +0.2 0	dp ±0.1	Bo +0.1 0	D	L	T	Material H3			Material D5		
								B	C	Tolerance of C	B	C	Tolerance of C
30	30	29	22	4.0	30	8	3.0	3.9	0.5	±0.2	3.9	0.5	±0.2
35	35	34	27	4.0	35	8	3.0	3.9	0.5	±0.2	3.9	0.6	±0.2
40	40	39	32	4.0	40	8	3.0	3.9	0.6	±0.2	3.9	0.7	±0.2
45	45	44	37	4.0	45	8	3.0	3.9	0.7	±0.3	3.9	0.8	±0.3
50	50	49	40	4.0	50	10	4.0	3.9	0.8	±0.3	3.9	0.9	±0.3
55	55	54	45	4.0	55	10	4.0	3.9	0.9	±0.3	3.9	1.0	±0.3
60	60	59	50	4.0	60	10	4.0	3.9	0.9	±0.3	3.9	1.1	±0.3
65	65	64	55	4.0	65	10	4.0	3.9	1.0	±0.3	3.9	1.1	±0.3
70	70	69	60	4.0	70	10	4.0	3.9	1.1	±0.3	3.9	1.2	±0.3
75	75	74	65	4.0	75	10	4.0	3.9	1.2	±0.3	3.9	1.3	±0.3
80	80	79	70	4.0	80	10	4.0	3.9	1.3	±0.3	3.9	1.4	±0.3
85	85	84	75	4.0	85	10	4.0	3.9	1.3	±0.3	3.9	1.5	±0.3
90	90	89	80	4.0	90	10	4.0	3.9	1.4	±0.3	3.9	1.6	±0.3
95	95	94	85	4.0	95	10	4.0	3.9	1.5	±0.3	3.9	1.7	±0.3
100	100	99	88	4.5	100	12	5.0	4.4	1.6	±0.4	4.4	1.8	±0.4
105	105	104	93	4.5	105	12	5.0	4.4	1.6	±0.4	4.4	1.8	±0.4
110	110	109	98	4.5	110	12	5.0	4.4	1.7	±0.4	4.4	1.9	±0.4
115	115	114	103	4.5	115	12	5.0	4.4	1.8	±0.4	4.4	2.0	±0.4
120	120	119	108	4.5	120	12	5.0	4.4	1.9	±0.4	4.4	2.1	±0.4
125	125	124	113	4.5	125	12	5.0	4.4	2.0	±0.4	4.4	2.2	±0.4
130	130	129	118	4.5	130	12	5.0	4.4	2.0	±0.4	4.4	2.3	±0.4
135	135	134	123	4.5	135	12	5.0	4.4	2.1	±0.4	4.4	2.4	±0.4
140	140	139	128	4.5	140	12	5.0	4.4	2.2	±0.6	4.4	2.5	±0.6
145	145	144	133	4.5	145	12	5.0	4.4	2.3	±0.6	4.4	2.5	±0.6
150	150	149	136	5.0	150	15	6.0	4.9	2.3	±0.6	4.9	2.6	±0.6
155	155	154	141	5.0	155	15	6.0	4.9	2.4	±0.6	4.9	2.7	±0.6
160	160	159	146	5.0	160	15	6.0	4.9	2.5	±0.6	4.9	2.8	±0.6
165	165	164	151	5.0	165	15	6.0	4.9	2.6	±0.6	4.9	2.9	±0.6
170	170	169	156	5.0	170	18	6.0	4.9	2.7	±0.6	4.9	3.0	±0.6
175	175	174	161	5.0	175	18	6.0	4.9	2.7	±0.6	4.9	3.1	±0.6
180	180	179	166	5.0	180	18	6.0	4.9	2.8	±0.6	4.9	3.2	±0.6
185	185	184	171	5.0	185	18	6.0	4.9	2.9	±0.6	4.9	3.2	±0.6
190	190	189	176	5.0	190	18	6.0	4.9	3.0	±0.6	4.9	3.3	±0.6
195	195	194	181	5.0	195	18	6.0	4.9	3.0	±0.6	4.9	3.4	±0.6
200	200	199	186	5.0	200	18	6.0	4.9	3.1	±0.6	4.9	3.5	±0.6

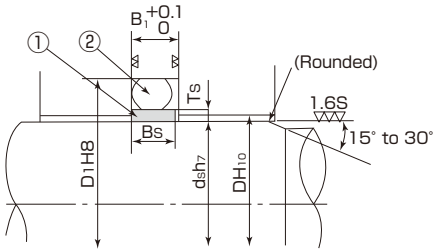
No.4376

PILAFLON™ slipper ring

For hydraulic cylinders (SO type)



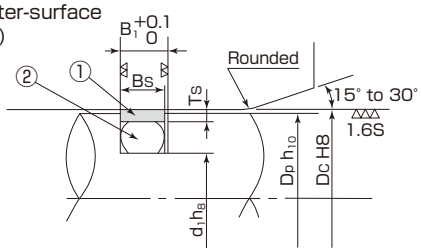
For pneumatic cylinder inner-surface sliding type (SAI type)



PILLAR No.4376

Cylinder	Piston					Material							
						PTFE containing filler			Synthetic rubber			Filler ferrule	
						①Slipper ring			②Backup ring			③Wear ring	
Dc	Dp	d1	d2	B1	B2	Ds	Bs	Ts	d_B	B_B	T_B	B_R	T_R
31.5	31	21.5	26.5	4.0	10	31.65	3.95	2.00	21.4	3.0	3.3	10	2.5
35.5	35	25.5	30.5	4.0	10	35.65	3.95	2.00	25.4	3.0	3.3	10	2.5
40	39.5	30	35	4.0	10	40.20	3.95	2.00	29.9	3.0	3.3	10	2.5
45	44.5	34	40	5.0	15	45.20	4.90	2.50	33.9	4.0	3.3	15	2.5
50	49.5	39	45	5.0	15	50.25	4.90	2.50	38.9	4.0	3.3	15	2.5
56	55.5	43	51	5.0	15	56.25	4.90	2.50	42.9	4.0	4.4	15	2.5
60	59.5	47	55	5.0	15	60.25	4.90	2.50	46.9	4.0	4.4	15	2.5
63	62.5	50	58	5.0	15	63.25	4.90	2.50	49.9	4.0	4.4	15	2.5
70	69.5	57	65	5.0	20	70.30	4.90	2.50	56.9	4.0	4.4	20	2.5
71	70.5	58	66	5.0	20	71.30	4.90	2.50	57.9	4.0	4.4	20	2.5
80	79.5	67	75	5.0	20	80.30	4.90	2.50	66.9	4.0	4.4	20	2.5
90	89.5	75	84	6.0	25	90.30	5.90	2.50	74.9	4.5	5.5	25	3.0
100	99.5	85	94	6.0	25	100.40	5.90	2.50	84.9	4.5	5.5	25	3.0
110	109.5	94	104	6.0	25	110.45	5.90	3.00	93.8	4.5	5.5	25	3.0
112	111.5	96	106	6.0	30	112.45	5.90	3.00	95.8	4.5	5.5	30	3.0
120	119.5	104	114	6.0	30	120.50	5.90	3.00	103.8	4.5	5.5	30	3.0
125	124.4	107	118	6.0	30	125.50	5.90	3.00	106.8	4.5	6.6	30	3.5
130	129.4	112	123	6.0	30	130.50	5.90	3.00	111.8	4.5	6.6	30	3.5
140	139.4	122	133	8.0	35	140.55	7.90	3.00	121.8	6.0	6.6	35	3.5
150	149.4	132	143	8.0	35	150.60	7.90	3.00	131.8	6.0	6.6	35	3.5
160	159.4	140	153	9.0	40	160.65	8.85	3.00	139.8	7.0	7.7	40	3.5
170	169.4	150	163	9.0	40	170.70	8.85	3.00	149.8	7.0	7.7	40	3.5
180	179.4	160	172	9.0	45	180.70	8.85	3.00	159.8	7.0	7.7	45	4.0
190	189.4	168	182	10.0	45	190.80	9.85	3.00	167.8	8.0	8.8	45	4.0
200	199.4	178	192	10.0	45	200.80	9.85	3.00	177.8	8.0	8.8	45	4.0
224	223.4	202	216	10.0	50	224.90	9.85	3.00	201.8	8.0	8.8	50	4.0
250	249.4	228	242	10.0	55	251.00	9.85	3.00	227.8	8.0	8.8	55	4.0

Pneumatic cylinder outer-surface sliding type (SAO type)



PILLAR No.4376

Shaft	Housing		①Slipper ring				②O-ring
d	D	D1	B1	ds	Ts	Bs	JISB2401
10	10.4	16	3.2	9.95	1.0	3.1	P12
12	12.4	18	3.2	11.95	1.0	3.1	P14
15	15.4	21	3.2	14.95	1.0	3.1	P16
18	18.4	24	3.2	17.90	1.0	3.1	P20
20	20.4	26	3.2	19.90	1.0	3.1	P22
22	22.4	30	4.7	21.90	1.0	4.6	P24
25	25.4	33	4.7	24.90	1.0	4.6	P26
28	28.4	36	4.7	27.90	1.0	4.6	P30
30	30.6	39	4.7	29.90	1.5	4.6	P32
32	32.6	41	4.7	31.90	1.5	4.6	P35
35	35.6	44	4.7	34.85	1.5	4.6	P38
38	38.6	47	4.7	37.85	1.5	4.6	P40
40	40.6	49	4.7	39.85	1.5	4.6	P42
42	42.6	51	4.7	41.85	1.5	4.6	P45
45	45.6	54	4.7	44.85	1.5	4.6	P48
48	48.6	57	4.7	47.85	1.5	4.6	P50
50	50.6	64	7.5	49.85	2.0	7.4	P53
55	55.6	69	7.5	54.80	2.0	7.4	P56
60	60.6	74	7.5	59.80	2.0	7.4	P63
65	65.8	79	7.5	64.80	2.0	7.4	P67
70	70.8	84	7.5	69.75	2.0	7.4	P71
75	75.8	89	7.5	74.75	2.0	7.4	P75
80	80.8	94	7.5	79.75	2.0	7.4	P80
85	85.8	99	7.5	84.70	2.0	7.4	P85
90	90.8	104	7.5	89.70	2.0	7.4	P90
95	95.8	109	7.5	94.70	2.0	7.4	P95
100	100.8	114	7.5	99.70	2.0	7.4	P102
105	105.8	119	7.5	104.65	2.0	7.4	P105
110	110.8	124	7.5	109.65	2.0	7.4	P112
115	115.8	129	7.5	114.65	2.0	7.4	P115
120	120.8	134	7.5	119.60	2.0	7.4	P120
125	125.8	139	7.5	124.60	2.0	7.4	P125
130	130.8	144	7.5	129.60	2.0	7.4	P132
135	135.8	149	7.5	134.55	2.0	7.4	P135

Shaft	Housing		①Slipper ring				②O-ring
d	D	D1	B1	ds	Ts	Bs	JISB2401
140	140.8	154	7.5	139.55	2	7.4	P140
145	145.8	159	7.5	144.55	2	7.4	P145
150	150.9	170	11	149.55	2.5	10.9	P150
155	155.9	175	11	154.50	2.5	10.9	P155
160	160.9	180	11	159.50	2.5	10.9	P160
165	165.9	185	11	164.50	2.5	10.9	P165
170	170.9	190	11	169.45	2.5	10.9	P170
175	175.9	195	11	174.45	2.5	10.9	P175
180	180.9	200	11	179.45	2.5	10.9	P180
185	185.9	205	11	184.40	2.5	10.9	P185
190	190.9	210	11	189.40	2.5	10.9	P190
195	195.9	215	11	194.40	2.5	10.9	P195
200	200.9	220	11	199.40	2.5	10.9	P200
210	210.9	230	11	209.35	2.5	10.9	P210
220	220.9	240	11	219.30	2.5	10.9	P220
230	230.9	250	11	229.30	2.5	10.9	P230
240	240.9	260	11	239.25	2.5	10.9	P240
250	250.9	270	11	249.25	2.5	10.9	P250
260	261.0	280	11	259.20	2.5	10.9	P260
270	271.0	290	11	269.15	2.5	10.9	P270
280	281.0	300	11	279.15	2.5	10.9	P280
290	291.0	310	11	289.10	2.5	10.9	P290
300	301.0	320	11	299.10	2.5	10.9	P300
310	311.0	330	11	309.05	2.5	10.9	P310
320	321.0	340	11	319.00	2.5	10.9	P320
330	331.0	350	11	329.00	2.5	10.9	P330
340	341.0	360	11	338.95	2.5	10.9	P340
350	351.0	370	11	348.95	2.5	10.9	P350
360	361.0	380	11	358.90	2.5	10.9	P360
370	371.0	390	11	368.85	2.5	10.9	P370
380	381.0	400	11	378.85	2.5	10.9	P380
390	391.0	410	11	388.80	2.5	10.9	P390
400	401.0	420	11	398.80	2.5	10.9	P400

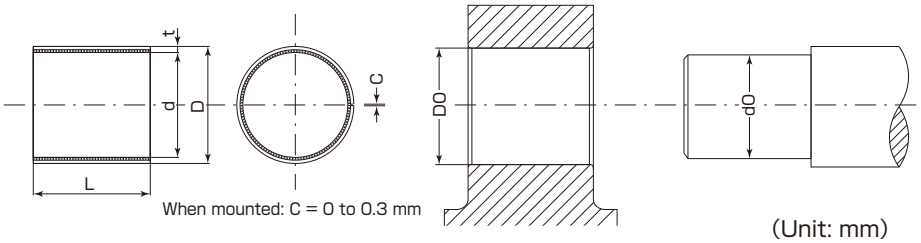
PILLAR No.4376

Shaft	Piston			①Slipper ring			②O-ring
Dc	Dp	d1	B1	Ds	Bs	Bs	JISB2401
10	9.6	5	2.5	10.05	1.0	2.4	P5
12	11.6	7	2.5	12.05	1.0	2.4	P7
15	14.6	10	2.5	15.05	1.0	2.4	P10
18	17.6	12	3.2	18.05	1.0	3.1	P12
20	19.6	14	3.2	20.1	1.0	3.1	P14
22	21.6	16	3.2	22.1	1.0	3.1	P16
25	24.6	19	3.2	25.1	1.0	3.1	P18
28	27.6	22	3.2	28.1	1.0	3.1	P22
30	29.6	22	4.7	30.1	1.0	4.6	P22A
32	31.4	23	4.7	32.1	1.5	4.6	P22A
35	34.4	26	4.7	35.15	1.5	4.6	P26
38	37.4	29	4.7	38.15	1.5	4.6	P29
40	39.4	31	4.7	40.15	1.5	4.6	P31
42	41.4	33	4.7	42.15	1.5	4.6	P32
45	44.4	36	4.7	45.15	1.5	4.6	P36
48	47.4	39	4.7	4.15	1.5	4.6	P39
50	49.4	41	4.7	50.15	1.5	4.6	P41
55	54.4	46	4.7	55.2	1.5	4.6	P46
60	59.4	51	4.7	60.2	1.5	4.6	P50
65	64.3	51	7.5	65.2	2.0	7.4	P50A
70	69.3	56	7.5	70.25	2.0	7.4	P56
75	74.3	61	7.5	75.25	2.0	7.4	P60
80	79.3	66	7.5	80.25	2.0	7.4	P65
85	84.3	71	7.5	85.3	2.0	7.4	P71
90	89.3	76	7.5	90.3	2.0	7.4	P75
95	94.3	81	7.5	95.3	2.0	7.4	P80
100	99.3	86	7.5	100.3	2.0	7.4	P85
105	104.3	91	7.5	105.35	2.0	7.4	P90
110	109.3	96	7.5	110.35	2.0	7.4	P95
115	114.3	101	7.5	115.35	2.0	7.4	P100
120	119.3	106	7.5	120.4	2.0	7.4	P105
125	124.3	111	7.5	125.4	2.0	7.4	P110
130	129.3	116	7.5	130.4	2.0	7.4	P115
135	134.3	121	7.5	135.4	2.0	7.4	P120
140	139.3	126	7.5	140.45	2.0	7.4	P125

Shaft	Piston			①Slipper ring			②O-ring
Dc	Dp	d1	B1	Ds	Bs	Bs	JISB2401
145	144.3	131	7.5	145.45	2.0	7.4	P130
150	149.3	136	7.5	150.45	2.0	7.4	P135
155	154.3	141	7.5	155.5	2.0	7.4	P140
160	159.3	146	7.5	160.5	2.0	7.4	P145
165	164.3	151	7.5	165.5	2.0	7.4	P150
170	169.2	150	11	170.55	2.5	10.9	P150A
175	174.2	155	11	175.55	2.5	10.9	P155
180	179.2	160	11	180.55	2.5	10.9	P160
185	184.2	165	11	185.6	2.5	10.9	P165
190	189.2	170	11	190.66	2.5	10.9	P170
195	194.2	175	11	195.6	2.5	10.9	P175
200	199.2	180	11	200.6	2.5	10.9	P180
210	209.2	190	11	210.65	2.5	10.9	P190
220	219.2	200	11	220.7	2.5	10.9	P200
230	229.2	210	11	230.7	2.5	10.9	P210
240	239.2	220	11	240.75	2.5	10.9	P220
250	249.2	230	11	250.75	2.5	10.9	P230
260	259.1	240	11	260.8	2.5	10.9	P240
270	269.1	250	11	270.85	2.5	10.9	P250
280	279.1	260	11	280.85	2.5	10.9	P260
290	289.1	270	11	290.9	2.5	10.9	P270
300	299.1	280	11	300.9	2.5	10.9	P280
310	309.1	290	11	310.95	2.5	10.9	P290
320	319.1	300	11	3121	2.5	10.9	P300
330	329.1	310	11	331	2.5	10.9	P300
340	339.1	320	11	341.05	2.5	10.9	P320
350	349.1	330	11	351.05	2.5	10.9	P320
360	359.1	340	11	361.1	2.5	10.9	P340
370	369.1	350	11	371.15	2.5	10.9	P340
380	379.1	360	11	381.15	2.5	10.9	P360
390	389.1	370	11	391.2	2.5	10.9	P360
400	399.1	380	11	401.2	2.5	10.9	P375
410	409.1	390	11	411.25	2.5	10.9	P385
420	419.1	400	11	421.3	2.5	10.9	P400

No.4822

PILLAR LBP curl bearing



(Unit: mm)

PILLAR No.4822

(Unit: mm)

Bearing number	d	D	L	t	C while in a free state C	Recommended size	
						Shaft do	Bearing housing Do
LBP-10	10	11.2	10	$0.6^{+0}_{-0.1}$	2 or less	$10^{+0}_{-0.022}$	$11.25^{+0.027}_{-0}$
LBP-11	11	12.2	11	〃	〃	$11^{+0}_{-0.027}$	12.25
LBP-12	12	13.2	12	〃	〃	12	13.26
LBP-14	14	15.2	14	〃	〃	14	15.27
LBP-15	15	16.8	15	$0.9^{+0}_{-0.1}$	〃	15	$16.87^{+0.027}_{-0}$
LBP-16	16	17.8	16	〃	〃	16	17.87
LBP-17	17	18.8	17	〃	〃	17	$18.87^{+0.033}_{-0}$
LBP-18	18	19.8	18	〃	〃	18	19.87
LBP-19	19	20.8	19	〃	3 or less	$19^{+0}_{-0.033}$	20.88
LBP-20	20	21.8	20	〃	〃	20	21.88
LBP-22	22	23.8	22	〃	〃	22	23.88
LBP-24	24	25.8	24	〃	〃	24	25.89
LBP-25	25	26.8	25	〃	〃	25	26.89
LBP-28	28	29.8	28	〃	〃	28	29.90
LBP-30	30	31.8	30	〃	〃	30	$31.90^{+0.039}_{-0}$
LBP-32	32	33.8	32	〃	4.5 or less	$32^{+0}_{-0.039}$	33.90
LBP-35	35	36.8	35	〃	〃	35	36.91
LBP-38	38	39.8	38	〃	〃	38	39.91
LBP-40	40	41.8	40	〃	〃	40	41.91
LBP-42	42	43.8	42	〃	5.5 or less	42	43.92
LBP-45	45	46.8	45	〃	〃	45	46.92
LBP-48	48	49.8	48	〃	〃	48	49.92
LBP-50	50	51.8	50	〃	〃	50	$51.93^{+0.046}_{-0}$
LBP-55	55	56.8	55	〃	7 or less	$55^{+0}_{-0.046}$	56.93
LBP-56	56	57.8	56	〃	〃	56	57.93
LBP-60	60	63.3	60	$1.63^{+0}_{-0.1}$	8 or less	60	63.39
LBP-63	63	66.3	63	〃	〃	63	66.40
LBP-65	65	68.3	65	〃	〃	65	68.40
LBP-70	70	73.3	70	〃	10 or less	70	73.40
LBP-75	75	78.3	75	〃	〃	75	78.40
LBP-80	80	83.3	80	〃	〃	80	$83.41^{+0.054}_{-0}$
LBP-85	85	88.3	85	〃	12 or less	$85^{+0}_{-0.054}$	88.41
LBP-90	90	93.3	90	〃	〃	90	93.41
LBP-95	95	98.3	95	〃	〃	95	98.42
LBP-100	100	103.3	100	〃	15 or less	100	103.42
LBP-105	105	108.3	105	〃	〃	105	108.42
LBP-110	110	113.3	110	〃	〃	110	113.42
LBP-120	120	123.3	120	〃	18 or less	120	$123.43^{+0.063}_{-0}$
LBP-125	125	128.3	125	〃	〃	$125^{+0}_{-0.063}$	128.43
LBP-130	130	133.3	130	〃	〃	130	133.43
LBP-140	140	143.3	140	〃	〃	140	143.43
LBP-150	150	153.3	150	〃	〃	150	153.44
LBP-160	160	163.3	160	〃	〃	160	163.44
LBP-170	170	173.3	170	〃	〃	170	173.44
LBP-180	180	183.3	180	〃	〃	180	$183.44^{+0.072}_{-0}$
LBP-190	190	193.3	190	〃	〃	$190^{+0}_{-0.072}$	193.44
LBP-200	200	203.3	200	〃	20 or less	200	203.44
LBP-220	220	223.3	220	〃	〃	220	223.44
LBP-240	240	243.3	240	〃	〃	240	243.44
LBP-250	250	253.3	250	〃	〃	250	$253.44^{+0.081}_{-0}$

MEMO

PILLAR

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Safety precaution

- When using this product, please use correctly and pay sufficient attention to safety.

* Please understand that this catalog may change without prior notice.
* The values shown on this catalog are reference values, not guaranteed values.

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