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CATALOGUE No. Z901

VALQUA PRODUCTS CATALOGUE

VALQUA PRODUCTS

VALUE & QUALITY



NIPPON VALQUA INDUSTRIES, LTD.

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NIPPON VALQUA INDUSTRIES, LTD.

Information

Note

- (a) This catalogue is based on data and information as of July, 2005. Depending on improvement of product, or revision of standard, it will be changed without notice.
- (b) This catalogue is edited for your choice of our products. Contact us for reference to catalogue or technical data or the detail of each product.
- (c) Temperature/pressure rate in this catalogue is based on our data/achievement. It is not on assumption of each condition. Consult us for each adaptability.

Edit




- (a) The products are classified into large, middle, small (reference to the following) in this catalogue. For your quick search, there are Index Page (from P.88) and Industrial Use Page (P.74 to P.87) in this catalogue.

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Seal		Large	Seals
Soft Gasket	<ul style="list-style-type: none">● Rubber Gasket● Compressed Non-Asbestos Sheet● Fluorocarbon Gasket● Expanded Graphite Gasket● Other Gasket	Middle	Soft Gasket
Metal•Semi-Metal Gasket	<ul style="list-style-type: none">● Spiral Wound Gasket● Semi-Metal Gasket● Metal-Gasket	Small	
Various Gasket	<ul style="list-style-type: none">● Oil Sheet● Other Gasket		

Seals			
Soft Gasket			
	VALQUA No.	Name	
Rubber Gaskets	2000	Synthetic Rubber Sheet	Synthetic Rubber Sheet
	2010	Synthetic Rubber Sheet Gasket	Synthetic Rubber Sheet Gasket available for punch
	4000	Fluoro Rubber Sheet	Fluoro Rubber Sheet
	4010	Fluoro Rubber Sheet Gasket	Fluoro Rubber Sheet Gasket available for punch
	5000	Silicone Rubber	Silicone Rubber Sheet

- (b) Note the following things before reference to page 4~87

- The marks in Size column indicate products achieving any of the following standards. No mention in Size column depend on the consultation.

	Approval of JIS mark
	Approval of American Bureau of Shipping
	National Water Council (England)

- The followings are registered trademarks of Nippon Valqua Industries, Ltd. The registered mark are omitted in this catalogue.

- VALFLON is a registered trademark of the fluoro-resin products we manufacture and sale.
- TOUGHRETHANE is a registered trademark of the urethane rubber products we manufacture and sale.
- VALQUAFOIL is a registered trademark of the expanded graphite fiber products we manufacture and sale.
- VALQUATIGHT is a registered trademark of the spiral wound gasket we manufacture and sale.
- DYNAMIC BELLOWS is a registered trademark of the metal welded bellows.

VALQUA PRODUCTS



NIPPON VALQUA INDUSTRIES, LTD.

The products we manufacture and develop, ranging from seals and gaskets to numerous items for applied seal engineering, are used extensively, not only in daily application, but also in pioneering fields.

Our Products play a vital role in equipment, machinery and systems for the industries that help improve the quality of our daily lives, such as semiconductor, automobile or electronic industries. In many instances, our products become a key element for enhancing safety, performance and production efficiency. Moreover, their importance is now recognized to meet the new needs for our society such as energy conservation and environmental safeguards.

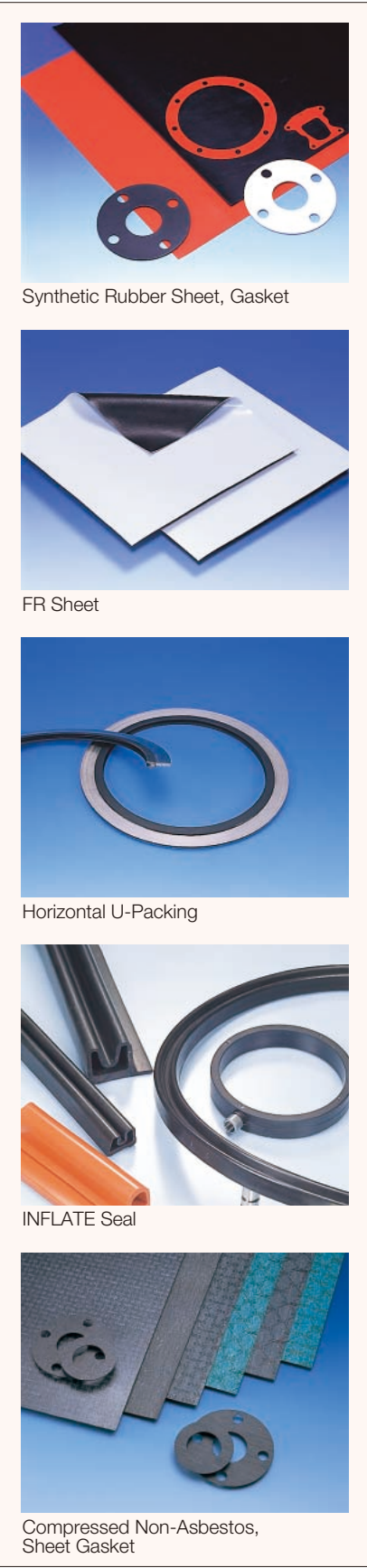
We support you in every way we can thorough our established and reliable technology.

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Soft Gasket




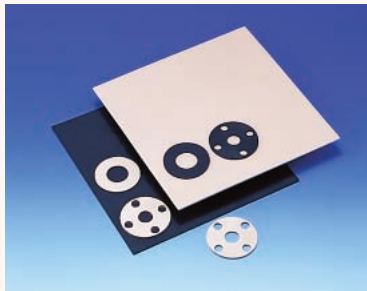

Rubber Gasket	VALQUA No.	Name	Description	Application	Size
	2000	Synthetic Rubber Sheet	Synthetic rubber (NBR, CR, EPDM) sheet	Used for low-pressure, such as cold water, hot water, sea water, and air	Thickness: 0.5, 0.8, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0 Width : 1000mm Length : 20 ~ 50M Nominal Size : Maximum OD 1000mm
	2010	Synthetic Rubber Sheet Gasket	No.2000 gasket processed into a specified flat shape		
	4000	Fluoro Rubber Sheet	Fluororubber sheet	Used for pipe flange, joint or cover of equipment and machinery, handling inorganic acid, fuel oil, aromatic solvent, etc. Temperature from -15 to +200°C	Thickness: 0.5, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 10.0mm Nominal Size : 1000 × 1000mm Maximum OD 1000mm
	4010	Fluoro Rubber Sheet Gasket	No.4000 gasket processed into a specified flat shape		
	5000	Silicone Rubber Sheet	Silicone rubber sheet	Used at wide temperature range. Temperature from -60 to +200°C	Thickness: 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 10.0mm Nominal Size : 1000 × 1000mm Maximum OD 1000mm
	5010	Silicone Rubber Sheet Gasket	No.5000 gasket processed into a specified flat shape		
	27000	FR Sheet	Laminated sheet of PTFE and synthetic rubber	Used for condenser etc. Can also be used as slider because of the low-adhesion and sliding properties that PTFE has and cushioning properties that rubber has.	PTFE Thickness : 0.1 ~ 1.5 mm Rubber Thickness : 0.1 ~ 1 mm Width : 380 mm Length : 5 M or more
	2060	Horizontal U-Packing	Synthetic rubber gasket of horizontal U-shaped cross section (ㄣ). Available is a type with a spacer ring attached to the periphery.	Used for resin flange or resin-lined flange for sea-water desalting equipment etc.	
	2045 4045 5045	INFLATE Seal	Hollow gasket made of cloth-reinforced rubber or of rubber itself. The hollow part is supplied with air etc. to inflate the gasket for higher sealing effect.	Used for sealing vacuum chamber or air-tight door	
Compressed Non-Asbestos Sheet Gasket	6500	Compressed Non-Asbestos Sheet	Non-asbestos fiber mixed with heat/chemical resisting rubber binder, then rolled and vulcanized	Used as pipe flange and gasket for equipment in various industries. Temperature range: -50 to +160°C ⁽¹⁾ If the gasket is used at temperature over 100°C, consult the supplier.	Thickness : 0.4, 0.5, 0.8, 1.0, 1.2, 1.5, 1.6, 2.0, 3.0 3.2,mm (ABS) Dimension 1270 × 1270, 1270 × 3810, 3048 × 3810mm (NWC)
	6500-AC	Compressed Non-Asbestos Sheet Anticorrosion Type	Version of No.6500 with anticorrosion treatment	Used as gasket for stainless steel pipe flange and as gasket for equipment joint, cover, etc. Stainless steel corrosion inhibition is expected. Temperature range: -50 to +180°C ⁽¹⁾ If the gasket is used at temperature over 100°C, consult the supplier.	Thickness : 1.0, 1.5, 2.0mm Dimension 1270 × 1270, 1270 × 3810mm
	6501	Compressed Non-Asbestos Sheet	Non-asbestos fiber, mixed with heat/chemical resisting rubber binder, then rolled and vulcanized.	Used as gasket for pipe flange and equipment in various industries. Temperature range: -50 to +200°C ⁽¹⁾ If the gasket is used at temperature over 100°C, consult the supplier.	Thickness : 0.4, 0.5, 0.8, 1.0, 1.2, 1.5, 1.6, 2.0, 3.0, 3.2mm Dimension 1270 × 1270, 1270 × 3810, 3048 × 3810mm
	6502	BLACK SUPER	High heat and steam resistant Non-asbestos [®] joint sheet that inhibits hardening caused by heat deterioration, by blending highly heat resistant, special rubber binder. Made of heat resistant, artificial inorganic and carbon fibers as well as the minimum amount of organic fibers required. It has excellent sealing characteristics due to its smooth sheet surface and highly dense structure.	Ideal for use as a joint surface gasket for pipe flanges, valve bonnets and covers for various industrial units that require heat resistance in petroleum refining, chemical and shipbuilding industries.	Thickness: 0.5, 0.8, 1.0, 1.5, 2.0, 3.0 mm Dimension: 1,270 × 1,270, 1,270 × 3,840, 2,540 × 3,810 mm

* Temperatures are given for guideline only. They should not be used for specification purposes. Customers are kindly requested to consult us for specific applications. Materials may, in some cases, be used under higher temperatures than those given.

Soft Gasket



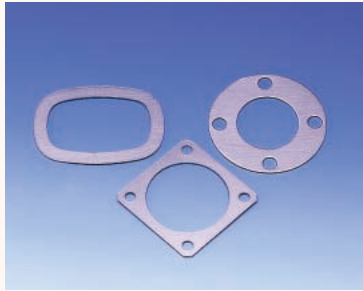


<div><p>8590TN</p></div>	Compressed Non-Asbestos Sheet Gasket	VALQUA No.	Name	Description	Application	Size
		GF300	BLACK HYPER	Highly heat and chemical resistant Non-asbestos® sheet mainly composed of graphite and PTFE that excels in thermal and chemical resistance. Composed only of highly heat resistant materials and no rubber materials contained, it allows retightening since hardening deterioration and degradation with age are prevented.	Suitable for industrial units and pipe flanges that are subject to high temperature and used for water, seawater, hot water, steam, air, acids (excluding oxidized acid such as hot, concentrated nitric and sulfuric acids), alkalis, saline water solution, oil, alcohol, aliphatic solvent and its steam, various gases and liquefied gases.	Thickness: 1.0, 1.5, 2.0, 3.0 mm Dimension: 1,235 mm dia. max.
		GE200	BLACK HYPER	Non-asbestos® sheet, made of main graphite materials and a minimum amount of rubber binder, that provides superior handleability. The handleability, for which conventional graphite sheets poses a problem, has been substantially improved,	Ideal for use as a joint surface gasket for pipe flanges, valve bonnets and covers for various industrial units that require heat resistance in petroleum refining, chemical and shipbuilding industries.	Thickness: 0.5, 1.0, 1.5, 2.0 mm Dimension: 1,235 mm dia. max.
		8590TN	Asbestos joint sheet substitute Non-asbestos gasket NONA-SUPER	Basic Non-asbestos® spiral type gasket with metal band lap wound on the circumference.	Used as Non-asbestos® gasket to replace asbestos joint sheet: Temperature range: -200 to +450°C	JIS Up to 5K, 10K, 20K and 200A JPI Up to 150 Lb, 300 Lb and 150A

Soft Gasket

<div><p>VALFON Sheet Gasket</p></div> <div><p>VALFLON Sheet</p></div> <div><p>VALFLON Soft Sheet</p></div> <div><p>Cord Sealing Tape Soft</p></div>	Fluorocarbon Gasket	VALQUA No.	Name	Description	Application	Size
		7010	VALFLON Sheet Gasket	PTFE sheet, processed into a specified flat shape	Used for pipe flange, various equipment, etc. for strong corrosive acid, halogen, solvent, oil, gas, food, medicine, etc. for which fluid contamination should be avoided. Temperature range: -50 to +100°C (depending on design.)	Thickness : 1.0, 1.5, 2.0, 3.0mm Dimension : 1000×1000mm 1300×1300mm
		7010-EX	NEW VALFLON Gasket	Gasket made of “NEW VALFLON” that provides improved creep resistance while maintaining PTFE’s excellent characteristics of heat resistance, chemical resistance and adhesion resistance. Excellent heat cycle life ensures a longer gasket life.	Suitable for pipe flanges and units used in food and medicine processing that should avoid contamination with highly corrosive acid, halogen, solvent, oil gas and fluid. Temperature range: -50 to +150°C	Thickness : 1.5, 3.0mm Dimension : 1000×1000mm 1100×1100mm
		7020	VALQUALON Sheet	PTFE, mixed with inorganic filler, then processed into sheet.	Used as gasket for pipe flange, equipment, etc. which require chemical resistance or heat resistance, or which handle extremely low temperature, such as LNG, liquid nitrogen, liquid oxygen, ethylene. Not suitable for concentrated alkali. Temperature range: -200 to +200°C	Thickness : 1.0, 1.5, 2.0, 3.0mm Max. outside diameter : 1270mm
		7026	Black VALQUALON Sheet	PTFE, mixed with carbonic filler, then processed into sheet.	Optimum especially for fluoric acid, hydrochloric acid, and concentrated alkali. Not suitable for oxidizing acid, such as smoke sulfuric acid and smoke nitric acid. Temperature range: -200 to +200°C	
		7GS62A 7GS62N 7GS64N 7GS66A 7GS66N	Cord Sealing Tape Soft	Free-size PTFE material, modified to soft and tough cord-type seal	Used for parts where PTFE corrosion resistance is required, where the flange accuracy is low, or where fastening strength is insufficient	7GS62A Cross section ; Rectangle (with adhesive) 7GS62N Cross section ; Rectangle (without adhesive) 7GS64N Cross section ; Circle (without adhesive) 7GS66A Cross section ; Ellipse (with adhesive) 7GS66N Cross section ; Ellipse (without adhesive)
		7GP61	VALFLON Soft Sheet	PTFE, modified to soft and tough sheet	Used as gasket for piping and equipment, handling food and high-purity chemicals	Thickness : 0.5, 1.0, 1.5,2.0, 3.0mm Dimension : 1500×1500mm Max. outside diameter : 1450mm
		7GP66	VALFLON Soft Sheet Gasket	7GP61, processed into a specified flat shape		
7204	VALFLON Gasket Tape	PTFE yarn, braided into tape	Used for tower, tank, and manhole handling corrosive fluid	Thickness : 3.0, 6.0mm Width : 25, 38mm Length : 5, 10m		

Note 1) Indicated as standard on not loading inner pressure

Soft Gasket




<div><p>VALFLON Envelope Gasket</p></div> <div><p>Tape Seal</p></div> <div><p>VALQUAFOIL Gasket</p></div> <div><p>VF Sheet Gasket</p></div> <div><p>VALQUAFOIL Tape</p></div>	Fluorocarbon Gasket	VALQUA No.	Name	Description	Application		Size	
		N7030	Non-Asbestos VALFLON Envelope Gasket	Elastic core material such as compressed non-asbestos sheet, coated with PTFE of V-shaped cross section	Used as gasket for pipe flange, tower, tank, and various equipment for corrosive liquid, such as acid, halogen, or for food, medicine, etc. for which fluid contamination should be avoided			
		N7031	Non-Asbestos VALFLON Envelope Gasket	Elastic core material such as compressed non-asbestos sheet, coated with PTFE of U-shaped cross section				
		N7035	Non-Asbestos VALFLON Envelope Gasket	Elastic core material such as compressed non-asbestos sheet, coated with PTFE of □-shaped cross section				
		20	Tape Seal	Unsintered PTFE tape	Used as sealing tape for screw joint of metallic pipe, plastic pipe, and conduit handling various fluids. Handle with care for sealing flammable, explosive and hazardous gas. Temperature limit: 260°C		Thickness : 0.075~0.2mm Width : 8~25mm Length : 5, 10, 15m	
		Expanded Graphite Gasket	VF-30	VALQUAFOIL Gasket	Swelled graphite sheet, processed into specified flat shape	Used as gasket for pipe flange handling penetrative liquid, such as thermal oil, extremely low temperature such as, LNG and liquid nitrogen, or corrosive liquid, and also for level gauge, valve bonnet, and other various equipment. VF-30 for low pressure, VF-35E for high pressure. Temperature range: -200 to +400°C		Thickness : 0.4, 0.8, 1.0, 1.2, 1.6, 3.0mm Dimension : 980×1000, 730×1000 (thickness:1.2mm) : 600×1000 (thickness:1.6, 3.0 mm)
			VF-35E	VALQUAFOIL Gasket with thin metallic sheet	Stainless steel sheet, with swelled graphite applied to both sides, processed into a specified flat shape			Thickness : 0.8, 1.6, 3.0mm Max. OD : 950mm
			VFT-30	VFT Sheet Gasket	VF-30 sheet, with laminated soft PTFE films applied to both sides, processed into specified flat shape	Application the same as VF-30, VF-35E. High sealing performance with low fastening force. Temperature range: -240 to +300°C (may stick at 250°C and higher)		Thickness : 0.5, 0.8, 1.0, 1.5 mm Dimension : 1000mm×10m : 1000×1000(thickness:1.5 mm)
			VFT-35E	VFT Sheet Gasket with thin metallic sheet	VF-35E sheet, with laminated soft PTFE films applied to both sides, processed into a specified flat shape			Thickness : 0.8, 1.2, 1.6, 3.0mm Max. OD : 950mm Thickness of stainless steel sheet : 0.05, 0.4 (thickness:1.2 mm)
			VF-60	VALQUAFOIL Flat Tape with Adhesive	Swelled graphite flat tape, with adhesive applied to one side	Pasted to the surface of metallic and semi-metallic gasket for improved sealing effect. Can be pasted directly to flange face at emergency. Temperature limit: 400°C		Thickness : 0.4mm Width : 13, 25mm Length : 7.5, 15m
VF-50 VF-70	VALQUAFOIL Gathered Tape		Corrugated swelled graphite. No.VF-70 is with adhesive applied to one side					

Soft Gasket




Other Gasket	VALQUA No.	Name	Description	Application	Size
	N214	VALQUATEX Gasket	Rubber coated glass fiber fabric processed into a specified flat shape	Used for combustion gas or exhaust gas duct, or undulated flange. Temperature limit: No.N214: 400°C No.N314: 800°C No.214: 400°C No.314: 500°C	
	N314	VALQUATEX Heat Resisting Gasket	Rubber coated ceramic fabric with wire processed into a specified flat shape	Since these gaskets do not have enough air-tightness, use them where some leakage is allowed.	










Metal /Semi-Metal Gasket

<div><p>CLEANTIGHT</p></div> <div><p>Striped CLEANTIGHT</p></div> <div><p>BLACKTIGHT</p></div>	Spiral Wound Gasket	VALQUA No.	Name	Description	Application		Size																									
		8590	CLEANTIGHT (basic design)	Spiral wound gasket using non-asbestos inorganic paper as filler material	Used as flange gasket for piping, valve bonnet, pressure vessel, etc. handling high temperature/high pressure steam, oil, oil gas, solvent, thermal oil, etc.																											
		8591	CLEANTIGHT (with outer ring)	Version of No.8590 with outer ring																												
		8592	CLEANTIGHT (with inner ring)	Version of No.8590 with inner ring																												
		8596	CLEANTIGHT (with inner/outer ring)	Version of No.8590 with inner and outer rings																												
		8590L	Striped CLEANTIGHT (basic design)	Spiral wound gasket with rolled VALQUAFOIL tape inside the spiral part of CLEANTIGHT.																												
		8591L	Striped CLEANTIGHT (with outer ring)	Version of No.8590L with outer ring																												
		8592L	Striped CLEANTIGHT (with inner ring)	Version of No.8590L with inner ring																												
		8596L	Striped CLEANTIGHT (with inner/outer ring)	Version of No.8590L with inner and outer rings																												
		6590	BLACKTIGHT (basic design)	Spiral wound gasket using VALQUAFOIL tape applied as filler material	Note (1) We recommend No.6596 and No.7596 (with inner/outer rings) because No.6591 and No.7591 (with outer ring) may cause abnormal deformation inside, depending on usage condition.																											
		6591	BLACKTIGHT (with outer ring)	Version of No.6590 with outer ring																												
		6592	BLACKTIGHT (with inner ring)	Version of No.6590 with inner ring																												
		6596	BLACKTIGHT (with inner/outer ring)	Version of No.6590 with inner and outer rings																												
					Other information																											
					• Gasket with partition bar for For ordering a product with the partition, specify size and flat shape with "Y." heat exchanger (ex.) Valqua No.8590V-ZEYZZ																											
					• Non-circular gasket For ordering a non-circular product (oval, ellipse, square, etc.), specify size and flat shape with "E." (ex.) Valqua No.8590V-ZEEZE																											
					• Gasket for nuclear power station For ordering a product for use where halogen ion or fat oil should be avoided, use (AE-processed) such as for a cooling system of a nuclear power station, specify "E." (ex.) Valqua No.6596V-EEZE																											
					Metal materials		Manufacturing Range <small>unit:mm</small>																									
					<table><tr><td>SUS304</td><td>aluminum</td></tr><tr><td>SUS304L</td><td>titanium</td></tr><tr><td>SUS316</td><td>nickel</td></tr><tr><td>SUS316L</td><td>Monel metal</td></tr><tr><td>SUS321</td><td>SPCC(inner/outer ring only)</td></tr><tr><td>SUS347</td><td></td></tr></table>		SUS304	aluminum	SUS304L	titanium	SUS316	nickel	SUS316L	Monel metal	SUS321	SPCC(inner/outer ring only)	SUS347		<table><tr><th>gasket thickness</th><th>inside diameter</th></tr><tr><td>6.4 (W)</td><td>300~4000</td></tr><tr><td>4.5 (V)</td><td>10~3000</td></tr><tr><td>3.2 (T)</td><td>10~1500</td></tr><tr><td>1.6 (P)</td><td>10~150</td></tr></table>				gasket thickness	inside diameter	6.4 (W)	300~4000	4.5 (V)	10~3000	3.2 (T)	10~1500	1.6 (P)	10~150
SUS304	aluminum																															
SUS304L	titanium																															
SUS316	nickel																															
SUS316L	Monel metal																															
SUS321	SPCC(inner/outer ring only)																															
SUS347																																
gasket thickness	inside diameter																															
6.4 (W)	300~4000																															
4.5 (V)	10~3000																															
3.2 (T)	10~1500																															
1.6 (P)	10~150																															
					Applied standard • JIS B 2404 • JPI-7S-41 • ASME B16, 20		Related standard • JIS F 7102																									
							Remarks: Product of gasket thickness 1.6 mm is available only for the basic shape and SUS 316 loop.																									



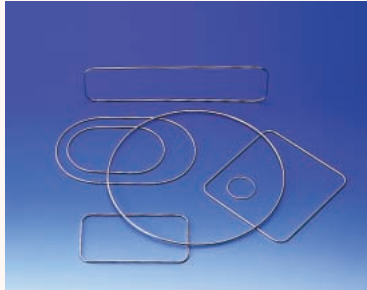


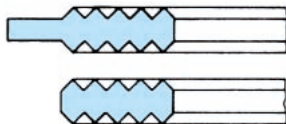
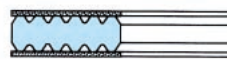
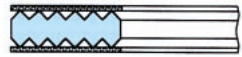


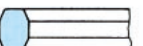
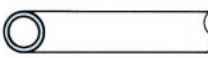
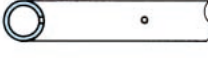
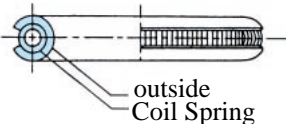
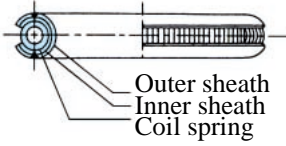
Metal /Semi-Metal Gasket

<div><p>WHITETIGHT</p></div>	Spiral Wound Gasket	VALQUA No.	Name	Description	Application	Size															
		7590	WHITETIGHT (basic design)	Spiral wound gasket using chemical-resisting VALFLON tape as filler material	<div>Standard Size</div> <div>Available usage range</div> <div><ul style="list-style-type: none">• for JIS pipe flanges• for JPI and ASME/ANSI pipe flanges</div> <div>The manufacture range includes gaskets for standard pipe flanges per API, MSS, etc. and for equipment such as heat exchangers, pressure vessels, and valve bonnets.</div> <div>Available usage range</div> <table><tr><th>Valqua No.</th><th>Temperature range °C⁽¹⁾</th><th>Pressure limitation MPa{kgf/cm²}</th></tr><tr><td>8590 series</td><td>−200~500</td><td>29.4{300}</td></tr><tr><td>8590L Series</td><td>−200~600</td><td>29.4{300}</td></tr><tr><td>6590 Series</td><td>−200~400</td><td>29.4{300}</td></tr><tr><td>7590 Series</td><td>−250~300</td><td>19.6{200}</td></tr></table> <div>Note (1) The temperature range above depends on the materials of hoop and inner/outer rings.</div>	Valqua No.	Temperature range °C ⁽¹⁾	Pressure limitation MPa{kgf/cm²}	8590 series	−200~500	29.4{300}	8590L Series	−200~600	29.4{300}	6590 Series	−200~400	29.4{300}	7590 Series	−250~300	19.6{200}	
		Valqua No.	Temperature range °C ⁽¹⁾	Pressure limitation MPa{kgf/cm²}																	
		8590 series	−200~500	29.4{300}																	
		8590L Series	−200~600	29.4{300}																	
		6590 Series	−200~400	29.4{300}																	
		7590 Series	−250~300	19.6{200}																	
7591	WHITETIGHT (with outer ring)	Version of No.7590 with outer ring																			
7592	WHITETIGHT (with inner ring)	Version of No.7590 with inner ring																			
7596	WHITETIGHT (with inner/outer ring)	Version of No.7590 with inner and outer rings																			



Metal /Semi-Metal Gasket

 <p>N510</p>	Semi-Metal Gasket	VALQUA No.	Name	Description	Application		Size		
		N510	Non-Asbestos Metal Jacketed Gasket (Corrugated, all-covered)	Non-asbestos core material covered with metal sheet and processed into a concentric circular corrugation.	Valqua No.	Cross Section	Application		
		N520	Non-Asbestos Metal Jacketed Gasket (Flat, all-covered)	Non-asbestos core material covered with metal sheet and processed into a specified flat shape					
		N530	Non-Asbestos Metal Jacketed Gasket (Flat, half-covered)	Non-asbestos core material covered with metal sheet on one side and processed into specified flat shape	N510		heat exchanger, valve bonnet pressure vessel tower, tank pipe flange		
		N570	Non-Asbestos Metal Jacketed Gasket (Circle, all-covered)	Non-asbestos core material wrapped with metal sheet and processed into a circular cross section.					
		N580	Non-Asbestos Metal Jacketed Gasket (Flat, double-covered)	Non-asbestos core material covered with metal sheet and processed into specified flat shape. The upper sheet is folded onto the lower surface.	N6510		heat exchanger, valve bonnet pressure vessel tower, tank pipe flange		
		N6510	Non-Asbestos VF Metal Jacketed Gasket	No.N510 gasket of which upper and lower surfaces are covered with adhering VALQUAFOIL tape, for improved sealing properties.	N520			heat exchanger, valve bonnet pressure vessel tower, tank pipe flange	
		N6520	Non-Asbestos VF Metal Jacketed Gasket	No.N520 gasket of which upper and lower surfaces are covered with adhering VALQUAFOIL tape, for improved sealing properties.	N6520		manhole/hand hole of boiler, steam trap, sight glass		
		N6580	Non-Asbestos VF Metal Jacketed Gasket	No.N580 to which upper and lower surfaces are covered with adhering VALQUAFOIL tape, for improved sealing performance	N530			manhole of boiler, steam trap, sight glass	
					N570		heat exchanger, valve bonnet pressure vessel tower, tank pipe flange		
			N580		heat exchanger, valve bonnet pressure vessel tower, tank pipe flange				
			N6580						
					Core Material and Temperature Limitation		Production Range		
					Core Material	Temperature Limitation °C ⁽¹⁾	unit:mm		
					Non-asbestos inorganic materials	(800) ⁽²⁾	materials	Min. ID	Max. OD ⁽¹⁾
					VALQUAFOIL Tape	400 ⁽³⁾	Low Carbon Steel	12	1200
					<p>Notes (1) Gasket temperature limit depending on the metal used in combination with the gasket.</p> <p>(2) For use at 800°C and higher, consult Nippon Valqua.</p> <p>(3) In the case of sticking the tape to the surface of metal-jacketed gasket.</p>		copper	10	980
							SUS304	15	1200
							SUS304L		
							SUS316		
							SUS316L		
							SUS321		
							SUS347		980
							SUS410		1200
							5Cr-0.5Mo Steel		980
							Brass		580
							Aluminum bronze		980
							Monel metal		580
							Titanium		980
							Nickel		580
							Aluminum	12	980
							Lead	15	1440
							Note (1) Manufacturing range without welding Remarks: Minimum gasket width 5 mm		






Metal /Semi-Metal Gasket

<div><p>540•560</p></div> <div><p>Ring Joint Gasket</p></div> <div><p>Metal Hollow O-ring</p></div> <div><p>TRYPACK</p></div>	Metal Gasket	VALQUA No.	Name	Description	Application		Size
		500	Metal Corrugated Gasket	Gasket made of low carbon steel or stainless steel sheet, corrugated in cross section, and processed into specified flat shape.	Valqua No.	Cross Section	Application
		540	Sawtooth Gasket	Gasket made of metal sheet, grooved concentrically with saw-tooth cross section, and processed into a specified flat shape	500		Gasket for valve bonnet
		6540H	VF Sawtooth Gasket	Gasket of metal sheet, grooved concentrically with special saw-tooth cross section, processed into a specified flat shape, then provided with VALQUAFOIL sheet bonded to both upper and lower surfaces for improved sealing performance	540		Gasket for pressure vessel, tower, vessel, valve bonnet, piping flange, etc.
		6540L	VF Sawtooth Gasket	No.540 with VALQUAFOIL tape bonded to both upper and lower surfaces for improved sealing performance	6540H		Gasket for heat exchanger, vessel, tower, vessel, etc.
		560	Metal Flat Gasket	Gasket made of various metal sheets processed into a flat shape	6540L		Gasket for pressure vessel, tower, vessel, valve bonnet, piping flange, etc.
		550	Ring Joint Gasket	Gasket made of metal materials processed into a specified cross section shapes, such as oval and octagonal	560		Gasket for heat exchanger, autoclave, valve bonnet, piping flange, etc.
		3640	Metal Hollow O-ring (basic design)	O-ring made of metal pipe processed into ring, with metal plating or other costing if required	550	 Oval  Octagonal	Gasket for piping flange, pressure vessel, valve bonnet, etc.
		3641	Metal Hollow O-ring (with venthole)	No.3640 O-ring provided with vent hole inside (for inner pressure) or outside (for outer pressure) for balancing	3640		Gasket for aircraft, nuclear reactor, vacuum equipment, internal combustion engine, electronics, hydraulic equipment, plastic processing equipment, melt spinning equipment, etc.
		3645	Trypack	Metal C-ring of which coil spring as elastic element is covered with thin aluminum and other metal sheet	3641		
		3645LS	Low clamp load Trypack	V-grooving is provided on the top and bottom seal surfaces of the conventional Trypack to improve fit with the seal surfaces so that prescribed air tightness may be obtained even at a lower clamp load.	3645		Used as a gasket for vacuum and ultra-vacuum. Sealing of top covers of storage casks for spent nuclear fuel.
					3645LS		

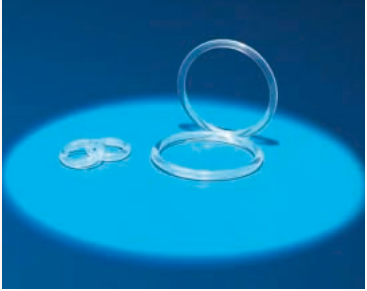


Various Gasket

<div><p>681</p></div> <div><p>Insulation Gasket kit</p></div>	Oil Sheet	VALQUA No.	Name	Description	Application	Size
		681	Oil Sheet Gasket	Sheet gasket made of vegetable fiber and oil- resisting rubber	Used as gasket for hydraulic pressure control of automatic transmission valve	Thickness: 0.18mm(standard) Dimension: 1320mm(max. width) × 2200m/roll
		681PG	Oil sheet Gasket (Adhesive type)	Metallic separate plate with No.681 bonded to both sides	Used as gasket for hydraulic pressure control of automatic transmission valve	
	Other Gasket	(7EB1)	Insulation Gasket Kit	Kit consisting of insulation gasket, insulation bolt, insulation washer, and iron washer/nut.	Used for flange connection requiring electric insulation	JIS 10K, 20K JPI class 150, 300
		(LVDP) (LVMP)	Water Level Gage Gasket Set	Set of glass and gasket of multiple-port water level gage for high-temperature/pressure boiler	Used for DP-3000 and MP-3000 water level indicators	
		(2GZ)	ESLON packing	Rubber gasket with two concentric trapezoid projections provided on the seal surface.	Used with a resin or resin-lined flange.	
		(7GJ)	ESLON packing	2GZ ESLON packing with the glue joint covered with PTFE.		
		2060 5060	Sanitary Gasket	Gasket made of synthetic rubber (EPDM, FKM, VMQ) molded into gasket, complying with Hood Hygiene Law.	Used as gasket for sanitary pipe fittings	



Molded Packing

<div><p>various O-ring</p></div> <div><p>ARMOR CRYSTAL</p></div> <div><p>SPOQ ARMOR</p></div> <div><p>ARCURY AD</p></div> <div><p>ARCURY AL</p></div>	O-ring	VALQUA No.	Name	Description	Application	Size
		640	Synthetic Rubber O-ring	Synthetic rubber molded into O-ring cross section. Colored type is available. Low-friction lubricant rubber materials are also available.	Simple construction and non-oriented sealing allow the 640 to be used as static or dynamic packing/gasket for machinery under a wide pressure range.	<Reference Standard> •JIS B 2401 •AS 568A •AN6227, 6230 •MS 28775 •ISO/R 1077, 1078 •JASO
		(NRF640)	NEW RUBBERFLON O-ring	No.640 with surface modified for increased strength	Low-friction surface gives no adhesion with other parts or machine. O-rings can be installed automatically and continuously. Used mainly as static seal.	<Reference Standard> •JIS B 2401 •AS 568A •AN6227, 6230 •MS 28775 •ISO/R 1077, 1078
		4640	Fluoro Rubber O-ring	Fluoro rubber molded into O-ring cross section. Colored types (white, brown) are also available.	Seal for machinery that needs heat, chemical or oil resistance.	<Reference Standard> •JIS B 2401 •AS 568A •ISO/R 1799, 1800 •NAS 1593, 1594, 1595, 1516
		(NRF4640)	NEW RUBBERFLON Fluoro Rubber O-ring	No.4640 with surface modified for increased strength	Low-friction surface offers no adhesion with other parts or machine. O-rings can be installed automatically and continuously. Used mainly as static seal.	<Reference Standard> •JIS B 2401 •AS 568A •ISO/R 1799, 1800 •NAS 1593, 1594, 1595, 1516
		H4640	Heat resistant fluoro rubber O-ring	Heat resistant fluoro rubber ring formed with O-shaped cross-section (Black).	The heat resistant fluoro rubber has significantly higher permanent compression set characteristics than conventional general-purpose fluoro rubber seal products. Its longer seal life promises an extended maintenance cycle.	<Reference Standard> •JIS B 2401 •AS 568A
		AC4640	ARMOR CRYSTAL O-ring	Armor Crystal molded into O-ring cross section (transparent). Particle action grade	No filler is used, which makes the O-ring highly pure. Low adhesion to metal and superior plasma-resistance allows the AC4640 to be used in dry etching/ashing equipment and CVD equipment for semiconductor and LCD equipment. Maximum temperature approx. 160°C	
		F4640	FLID O-ring	Flid molded into O-ring cross section (black). Standard popular grade	Superior mechanical properties allow the O-ring to be used for sealing vacuum gates of semiconductor and LCD equipment, and for conveyor belt. Maximum temperature approx. 200°C	
		FA4640	FLID ARMOR O-ring	Flid Armor molded into O-ring cross section (black). Special low-friction grade	Superior mechanical properties and low adhesion to metal. Used mainly for sealing vacuum gates of semiconductor or LCD equipment. Maximum temperature approx. 200°C	
		SA4640	SPOQ ARMOR O-ring	Spoq Armor molded into O-ring cross section (white). Anti-plasma grade	Superior in purity, plasma resistance, and low adhesion to quartz. Used in dry etching/ashing equipment and CVD equipment for semiconductor and LCD equipment. Maximum temperature approx. 200°C	
		HA4640	HYREC ARMOR O-ring	HYAREC ARMOR ring formed with O-shaped cross-section (transparent amber). Plasma resistant grade.	Excels in purity, plasma resistance, heat resistance and adhesion resistance against metal (for stationary part only). Used in dry etching, ashing and CVD devices for semiconductor and liquid crystal equipment. Standard maximum operating temperature: 220°C	
		UA4640	ULTIC ARMOR O-ring	Rings of ULTIC ARMOR formed with O-shaped cross-section (transparent amber). Plasma resistant grade.	Excels in purity, plasma resistance, heat resistance and adhesion resistance against metal. Used in dry etching, ashing and CVD devices for semiconductor and liquid crystal equipment. Standard maximum service temperature: 220°C	
		LA4640	LABE ARMOR O-ring	LABE ARMOR ring formed with O-shaped cross-section (blue). For O2 plasma resistant grade only.	Excels in resistance to O2 plasma and adhesion resistance against quartz. Used in ashing devices for semiconductor and liquid crystal equipment. Standard maximum service temperature: 200°C	
		WD4640	ARCURY AD O-ring	ARCURY AD ring formed with O-shaped cross-section (transparent amber). For acid resistance applications.	Excels in resistance to acid solution and provides high purity due to lowest extraction of metals and organics. Used in wafer and glass substrate cleaning equipment, spin coaters, spin developers and chemical carrier tank seals.	
		WL4640	ARCURY AL O-ring	ARCURY AL ring formed with O-shaped cross-section (black). For alkaline resistance applications.	Excels in resistance to alkaline solvents including ammonia for which conventional fluoro rubber cannot be used. Used in wafer and glass substrate cleaning equipment, spin coaters, spin developers and chemical carrier tank seals.	



Molded Packing

<div><p>ARCURY SO</p></div> <div><p>ARCURY OZT</p></div> <div><p>ARCURY OZW</p></div> <div><p>2630 • 2631</p></div> <div><p>MV-Packing</p></div>	O-ring	VALQUA No.	Name	Description	Application	Size
		WO4640	ARCURY SO O-ring	ARCURY SO ring formed with O-shaped cross-section (white). For resistance to ketone, ester and amine.	Excels in resistance to polar organic solvent including ketone, ester and amine. Used in wafer and glass substrate cleaning equipment, spin coaters, spin developers and chemical carrier tank seals.	<Reference Standard> •JIS B 2401 •AS 568A
		OZT4640	ARCURY OZT O-ring	ARCURY OZT ring formed with O-shaped cross-section (transparent). For resistance to ozone	Excels in resistance to ozone gas and water and provides high purity due to lowest extraction of metals and organics. Used in ozone cleaning systems, ozone generators and ozone decomposition systems.	
		OZW4640	ARCURY OZW O-ring	ARCURY OZW ring formed with O-shaped cross-section (white). For resistance to ozone.	Excels in resistance to ozone gas and water and provides higher heat resistance than OZT. Used in ozone cleaning systems, ozone generators and ozone decomposition systems.	
		VP4640	Fluoritz-SB	Fluoritz SB, a perfluoroelastomer, formed with O-shaped cross-section (black). Extremely excellent resistance to chemicals.	Used in areas requiring high resistance to chemicals for semiconductor, liquid crystal, chemical and electric/electronic industries.	
		VPW4640	Fluoritz-SW	Fluoritz SW, a perfluoroelastomer, formed with O-shaped cross-section (white). Extremely excellent resistance to plasma as well as chemicals.	Used in areas requiring high resistance to plasma for semiconductor and liquid crystal equipment (etching, CVD and ashing devices).	
		VPH4640	Fluoritz-HR	Fluoritz HR, a perfluoroelastomer, formed with O-shaped cross-section (black). Extremely excellent resistance to chemicals as well as heat.	Used in areas requiring high thermal resistance for semiconductor and liquid crystal equipment (PE-CVD, LP-CVD and diffusion furnace) and in automobile, chemical and energy sectors.	
	X-ring	5640	Silicone Rubber O-ring	Silicone rubber molded into O-ring cross section	Used as static seals under a wide temperature range	<Reference Standard> •JIS B 2401 •AS 568A •ISO/R 1799,1800
		P9640	TOUGHRETHANE O-ring	Urethane rubber molded into O-ring cross section	Used mainly as high-pressure seal	
		641	Synthetic Rubber X-ring	Synthetic rubber molded into X-shaped cross section ring	Seal for rotating shaft of machinery. Synthetic	
	V-packing	4641	Fluoro Rubber X-ring	Fluoro rubber molded into X-shaped cross section ring	Used as seal for rotating shaft that needs chemical and heat resistance	
		2630	Cloth and Synthetic Rubber V-packing	Synthetic-rubber-lined cloths pasted together, then molded into V-shaped cross section ring	Used mainly as seal for hydraulic machinery	<Reference Standard> • JIS B 2403
		2631	Synthetic Rubber V-packing	Synthetic rubber molded into V-shaped cross section ring		<Reference Standard> • JIS B 2403 • AN 6225
		2632-MV	MV-packing	Composite seal combining No.2630 and special synthetic rubber molded into U-shaped cross section ring	High-performance composite seal is suitable for sealing injection molding hydraulic cylinder, hydraulic press, etc. Groove for V-packing (No.2630, 2631) can be used as it is.	<Reference Standard> • Refer to JIS B 2403
		4630	Cloth and Fluoro Rubber V-packing	Fluororubber-lined cotton cloths pasted together and molded into ring shape with V-shaped cross section	Used as seal for hydraulic equipment which needs heat, chemical and solvent resistance	<Reference Standard> •JIS B 2403
		4631	Fluoro Rubber V-packing	Fluororubber molded into V-shaped cross section ring		

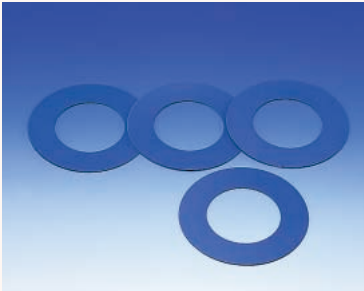


Molded Packing

	VALQUA No.	Name	Description	Application	Size																
 VALFLON V-packing	7330-CV	Carbon Cloth and VALFLON V-packing	PTFE-processed carbon cloth laminated and molded into V-shaped cross section ring	Used mainly used as seal for high-speed and high-pressure, such as water jet and plunger pump																	
	7631	VALFLON V-packing	PTFE machined into V-shaped cross section ring. Three types are available: for high pressure use (H), for medium pressure (M), and for low pressure (L).	Used as seal for valve stem, plunger, rod, and piston for acid, alkali, solvent, LNG, etc.																	
 TOUGHRETHANE Packing	2060	Synthetic Rubber Packing	Synthetic rubber molded into U, J or L-shaped cross section ring. Various recipes are available to suit temperature and fluid conditions.	Used as seal for various hydraulic and pneumatic machinery, such as cylinder, press, jack or solenoid-controlled valve	U-packing <table><tr><td>Cross Section Series</td><td>Rod</td><td>Piston</td><td>VALQUA No.</td></tr><tr><td>UH</td><td>UHR</td><td>UHP</td><td>2060</td></tr><tr><td>UN</td><td>UNR</td><td>UNP</td><td>4060</td></tr><tr><td>ML</td><td>MLR</td><td>MLP</td><td>E9625</td></tr></table>	Cross Section Series	Rod	Piston	VALQUA No.	UH	UHR	UHP	2060	UN	UNR	UNP	4060	ML	MLR	MLP	E9625
	Cross Section Series	Rod	Piston	VALQUA No.																	
	UH	UHR	UHP	2060																	
	UN	UNR	UNP	4060																	
	ML	MLR	MLP	E9625																	
4060	Fluoro Rubber Packing	Fluororubber molded into U, J or L-shaped cross section ring	Used as seal for hydraulic and pneumatic machinery that needs heat, resistance or solvent resistance																		
P9625 E9625 TE9625	TOUGHRETHANE Packing and Dust Seal	Urethane rubber molded into U, J or L-shaped cross section ring	Used as seal for hydraulic machinery from -20℃ to +80℃. Especially appropriate for hydraulic cylinder packing that needs high-pressure and abrasion-resistance properties.																		
 SLIPPER SEAL	7740	SLIPPER SEAL	VALFLON seal ring combined with various synthetic rubber seals. Coefficient of friction is extremely low because of fluororesin used as slider.	Used as compact seal of excellent ability for pistons under a wide range of pressure and temperature.	<Reference Standard> • JIS B 2407 • MS9058, 27595, 28773, 28774, 28782, 28783																
	7645	VALFLON Back-up ring	PTFE machined into a ring of spiral-shaped, one-cut-shaped or endless-shaped cross section.	Used as back-up ring for preventing O-ring and U-packing from extrusion																	
	 Oil Seal	432	Wear ring	Phenol resin with cloth, molded into a specified shape	Piston pin bearing effective to stabilize the shaft. Used with slipper seal, U-packing, etc.																
 VF Seal	2650	Synthetic Rubber Oil Seal	Seal with synthetic-rubber seal lip, and with metal reinforcing ring attached to the periphery	Used as rotating shaft seal for water, oil, gasoline, alcohol, etc.	<Reference Standard> • JIS B 2402																
	4650	Fluoro Rubber Oil Seal	Seal with fluororubber seal-lip, and with metal reinforcing ring attached to the periphery	Used as a seal for rotation shafts that require resistance to heat and solvents.																	
	5650	Silicone Rubber Oil seal	It has a seal lip made of silicone rubber with metal reinforcing ring attached along the circumference.																		
		7777	VF Seal	Seal with filler-reinforced PTFE seal element	Used as seal of rotating shaft that requires chemical, heat, oil, and solvent resistance.																

Molded Packing

 Diaphragm	Diaphragm	VALQUA No.	Name	Description	Application	Size
		2810	Synthetic Rubber Diaphragm	Synthetic rubber or cloth-reinforced synthetic rubber, molded into specified shape and size. Variations with baked PTFE for improved pressure and chemical resistance are also available.	Used as seal for pumps and valves	
		4810	Fluoro Rubber Diaphragm	Fluororubber or cloth-reinforced fluororubber, molded into specified shape and size	Used as seal for valves and pumps that require chemical or solvent resistance	
		5810	Silicone Rubber Diaphragm	Silicone rubber or cloth-reinforced Silicone rubber molded into specified shape and size	Diaphragm with superior heat-resistance	
 Willson Seal	Other Seal	7810	VALFLON Diaphragm	PTFE or PFA molded into specified shape and size	Used as seal for valves and pumps that require chemical and solvent resistance	
		UB4060	ULTIC ARMOR bonded gate seal	Gate seal plate baked and integrally molded with transfer gate metal.	Used to provide a solution to such problems as torsion, breakage, dusting and dropout of O-ring seal materials that may occur in transfer gate seal mechanisms using O-rings for semiconductor equipment.	
		HB4060	HYREC ARMOR bonded gate seal	Gate seal plate baked and integrally molded with transfer gate metal.	Used to provide a solution to such problems as torsion, breakage, dusting and dropout of O-ring seal materials that may occur in transfer gate seal mechanisms using O-rings for semiconductor equipment.	
		FB4060	FLID bonded gate seal	Gate seal plate baked and integrally molded with transfer gate metal.	Used to provide a solution to such problems as torsion, breakage, dusting and dropout of O-ring seal materials that may occur in transfer gate seal mechanisms using O-rings for semiconductor equipment.	
		4560	Willson Seal	Fluoro rubber seal lip combined with metal adapter spacer (4560). Synthetic rubber (2560) and silicone rubber (5560) are available.	Used as vacuum seal for rotary shaft with much runout	
		7510	VALFLON Piston Ring	PTFE with filler, molded into specified shape and size	Used as seal for compressors etc.	
		7520	VALFLON Segmental Rod Packing			
		6510M	Carbon Ring	Carbon molded into specified shape and size	Used as rod or piston packing or rider ring for oil-free compressor	
		(18)	Felt Ring	Wool felt molded into specified shape and size	Used for dust prevention or grease retaining of machinery	
		2620	Cloth and Synthetic Rubber Autopack Ring Packing	Synthetic-rubber-lined cloths pasted together and molded into specified shape and size	Used as seal for rod or plunger handling cold and hot water or sea water	
		2625	Cloth and Synthetic Rubber Miscellaneous Packing	Synthetic-rubber-lined cloths pasted together and molded into specified shape and size. Available are packings of U, J, and L-shaped cross section.	Used as seal for ram, piston, rod or plunger handling water or oil	
		4625	Cloth and Fluoro Rubber Miscellaneous Packing	Fluororubber-lined cloths pasted together and molded into specified shape and size. Available are packings of U, J, and L-shaped cross section.	Used as seal for ram, piston, rod or plunger handling hot oil, chemicals or solvent	
		2710	Synthetic Rubber Hydraulic Lip Packing	Synthetic-rubber-lined cotton cloth folded and molded into specified shape and size, with antifriction alloy embedded into the friction surface	Used as seal for ram and plunger	




Molded Packing

<div><p>VT Rubber Packing</p></div> <div><p>Synthetic Rubber Injection products</p></div> <div><p>TOUHRETHANE Packing</p></div>	Other Seal	VALQUA No.	Name	Description	Application	Size
	Various Molded Product	2800	Synthetic Rubber Combined Lip Packing	Packing set composed of a synthetic rubber back-ring and a seal lip ring	Used as reciprocating or rotating shaft seal for oil, water, etc.	
		27000	VT Rubber Packing	Synthetic rubber and PTFE molded integrally into specified shape and size	Used as low-friction, low-adhesion and corrosion-resisting packing, gasket, and diaphragm sheet	
		2060	Synthetic Rubber Packing	Synthetic rubber molded into specified shape and size	Used as seal and equipment parts	
				Synthetic rubber molded by injection into specified shape and size	Equipment seal made up of low-adhesion and low-friction rubber material that has been forcibly bled of oil. Used mainly as seal for wire harness. Suitable for large-scale production.	
		4060	Fluoro Rubber Packing	Fluororubber molded into specified shape and size	Used as various seals or machine parts.	
		P9060 C9060 E9060	TOUGHRETHANE Packing	Urethane rubber molded into specified shape and size	Used as various seals or machine parts.	
		AC4060	ARMOR CRYSTAL Packing	Transparent fluororubber molded into specified shape and subjected to rubber reforming process, which is Nippon Valqua's proprietary technology.	Transparent and superior in purity because of no filler contained. Low in adhesion to metals and superior in plasma resistance. Used in dry etching/ashing equipment and CVD equipment for semiconductor and LCD equipment. Temperature limit: 150°C	
		F4060	FLID Packing	Black fluororubber molded into specified shape	Superior in purity and mechanical properties. The product is used for vacuum seal and conveyor belt for semiconductor and LCD manufacture. Temperature limit: 200°C	
		FA4060	FLID ARMOR Packing	Black fluororubber molded into specified shape and subjected to rubber reforming process, which is Nippon Valqua's proprietary technology.	Superior in purity, mechanical properties, and low adhesion to metals. Used as vacuum seal and as conveyor belt for semiconductor and LCD manufacture. Temperature limit: 200°C	
		SA4060	SPOQ ARMOR Packing	White fluororubber molded into specified shape and subjected to rubber reforming process, which is Nippon Valqua's proprietary technology.	Superior in purity, mechanical properties, and low adhesion to quartz. Used in dry etching/ashing equipment and CVD equipment for semiconductor and LCD equipment. Temperature limit: 200°C	
		5060	Silicone Rubber Packing	Silicone rubber molded into a specified shape	Used as heat-resisting electric-insulating packing and gasket for -60 to +250°C	
				Silicone rubber molded into a specified shape by injection	Equipment seal made up of low-adhesion and low-friction rubber material that has been forcibly bled of oil. Used mainly as seal for wire harness. Suitable for large-scale production.	
				Liquid silicone rubber molded into a specified shape by injection (LIMS)	Used as seal for medical and food equipment that requires non-contaminated clean surface	



Gland Packing

<div><p>6201</p></div> <div><p>6399</p></div> <div><p>VF-10T</p></div> <div><p>VF Braid</p></div>	Carbon fiber	VALQUA No.	Name	Description	Application	Size
		6201	Carbon Fiber Coil Packing	Coil packing of carbonized fabric yarn, processed with PTFE dispersion and lubricating oil, then braided into square cross section and finished with PTFE, fine graphite and lubricating oil	Used as seal for rotary shaft treating industrial water, urban drainage, animal/plant/mineral oil, weak acid, weak alkali, etc. Temperature limit: 200°C	For: 3~25mm Length : 3m
		6234	PTFE-Coated Carbon Fiber	Coil packing made of carbonized fabric yarn covered with PTFE film, braided into square cross-section and finished with PTFE, special lubricant and lubricating oil after treatment with PTFE dispersion.	Used as seal for rotation shafts for industrial water, municipal waste water, animal fats, vegetable oil and mineral oil, acid and weak alkali. Temperature limit: 200°C	
		6232	Carbon Fiber Coil Packing	Coil packing of carbonized fabric yarn, processed with PTFE dispersion and lubricating oil, then braided into square cross section and finished with PTFE, fine graphite and lubricating oil	Used as seal for valves and rotary shaft treating industrial water, animal/plant/mineral oil, powder, gas strong acid (except oxidative acid), etc. Temperature limit: 260°C	
		6262	Carbon Fiber Coil Packing	Coil packing of carbonized fabric yarn, processed with PTFE dispersion and lubricating oil, then braided into square cross section and finished with PTFE, fine graphite and lubricating oil	Used as seal for rotary pump shaft treating industrial water, salt solutions, strong alkali, strong acid (except oxidative acid), etc. Applicable to rotary machine shaft depending on operating conditions. Temperature limit: 260°C	
		6267	Carbon Fiber Coil Packing	Coil packing of carbonized fabric yarn, processed with graphite, then braided into square cross section and finished with graphite	Packing exclusive for headed ring. Normally used with No.VF-10, VF-20, etc. as shaft seal for valves for water/oil fluid, non-combustible/combustible gases, liquefied gas, etc. Temperature limit: 350°C	
		6345	Carbon Fiber Coil Packing	Coil packing of high-grade carbonized fabric yarn, processed with graphite, then braided into square cross section and finished with graphite	Used as seal for joint of exhaust heat duct of boiler/turbine, door part of damper and dryer, manhole etc. Temperature limit: 750°C (400°C in the air)	For : 9.5~25mm Length : Option
		6399 6399L	Carbon Fiber Coil Packing	Coil packing of high-tension carbonized fabric yarn, processed with PTFE dispersion, then braided into square cross section and finished with PTFE and fine graphite (6399L processed with lubricant)	Used as seal for reciprocating machine shaft for water/oil fluid, solvent vapor, etc. and for vale shaft. Temperature limit: 300°C (260°C for No.6399L)	Thickness : 3~25mm Length : 3m
		6399H	Carbon Fiber Ring Packing	No.6399 molded tight into jointless ring packing of specified size	Used as seal for reciprocating machine shaft for water/oil fluid, solvent vapor, etc. and for vale shaft, normally as header ring of No.6399 and No.8201. Can be used also as header ring of valve shaft seal. Temperature limit: 300°C	For : 3~25mm Formed ring shape.
		6399-AE	Carbon Fiber Ring Packing	Ring-formed packing of high-tension carbonized fabric yarn, braided into square cross section and finished with graphite and lubricating oil. Quality controlled for nuclear power use.	Used as shaft seal for nuclear power use valve shafts, for header of No.VF-10AE, VF-20LAE, etc. (exclusive for header)	
		6399L-AE		Packing of high-tension carbonized fabric yarn, processed with PTFE dispersion, then braided into square cross section and finished with PTFE, fine graphite and lubricating oil. Quality controlled for nuclear power use.	Used mainly as shaft seal for nuclear power use, for header of No.VF-10AE, VF-20LAE.	
	Expanded Graphite	VF-10	VALQUAFOIL Ring Packing	Ring packing molded with expanded graphite powder or tape using tooling for specified dimensions. Available in standard, quick removal and lubricant-treated types.	Used as a shaft seal for valves for water, steam, oil, acid, alkali, heat medium, solvent and gas (except oxygen, oxidizer, oxidized acid) applications. Usually used in combination with adapter packings such as No.VFC-25 and 6399L. Temperature limit: 650°C (under air of 400°C)	Molded ring
		VF-10AE	Nuclear VALQUAFOIL	VALQUAFOIL ring packing equivalent to No.VF-10 except that soluble chlorine (including fluorine) is controlled below 100 ppm.	Used as a shaft seal for nuclear valves for BWRs and PWRs. Operation limit: 350°C, 17.2 MPa (up to the maximum specifications of PWR)	
		VF-20 VF-20L VF-20LF	VF Braid	No.VF-20 is a coil packing made of expanded graphite yarn reinforced with Inconel wire and braided into a square cross-section. No.VF-20L and VF-20LF are of low-torque type treated with lubricating oil and special unification treatment, respectively. No.VF-20LAE is also available for nuclear valves.	Used as a shaft seal for valves for water, steam, oil, acid, alkali, heat medium, solvent and gas (except oxygen, oxidizer, oxidized acid) applications. Usually used in combination with adapter packings such as No.VFC-25 and 6399L. Temperature limit: 650°C (under air of 400°C)	Thickness : 3~25mm Length : 3m
		VF-22	VF Braid	No.VF-22 is a coil packing made of expanded graphite yarn braided into a square cross-section.	Used as a shaft seal for valves for pumps, rotary and reciprocating equipment for water, steam, oil, acid, alkali, heat medium, solvent and gas (except oxygen, oxidizer, oxidized acid) applications. Used in combination with adapter packings such as No.6345 and 1110 for reciprocating and high-pressure applications.	




Gland Packing

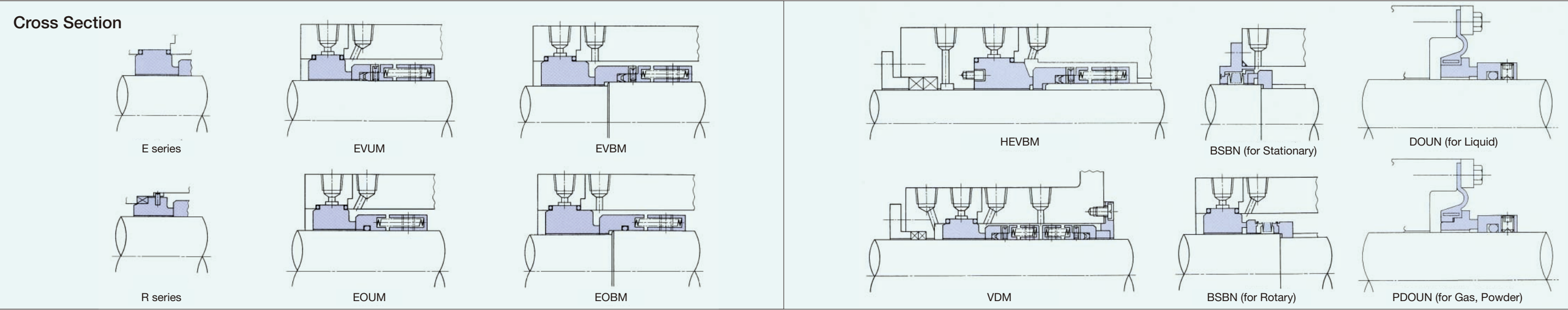
<div><p>7201</p></div> <div><p>7203</p></div> <div><p>7232</p></div>	Expanded Graphite	VALQUA No.	Name	Description	Application	Size
	Expanded Graphite	VF-25 VF-25L VF-25LF	VF Braid	No.VF-25 is a coil packing made of expanded graphite yarn reinforced with Inconel wire, braided into a square cross-section and clad with Inconel wire on its surface to increase strength. No.VF-25L and VF-25LF are of low-torque type treated with lubricating oil and special unification treatment, respectively.	No.VF-25 is used as a shaft seal for valves and an adapter for No.VF-20 and VF-20L (Packing for adapters only). No.VF-25L may be used independently. Temperature limit: 650°C (under air of 400°C)	Thickness: 3-25 mm Length: 3 m
		VFC-25	Carbon Fiber Reinforced VF Braid	No.VFC-25 is a coil packing made of expanded graphite yarn reinforced with carbon fiber and Inconel wire, braided into a square cross-section and processed with special lubrication treatment.	No.VFC-25 is used as a shaft seal for valves and an adapter for No.VF-10 and VF-20 (Packing for adapters only). Temperature limit: 650°C (under air of 400°C)	
		VFT-22	PTFE-cladded VF Braid	No.VFT-22 is a coil packing made of expanded graphite yarn reinforced with carbon fiber and Inconel wire, braided into a square cross-section and processed with special lubrication treatment. It is a gland packing that makes full use of the characteristics of each material.	Used as a shaft seal for pump valves for water, steam, oil, acid, alkali, heat medium, solvent and gas (except oxygen, oxidizer, oxidized acid) applications. Temperature limit: 300°C	
	Fluorocarbon Fiber	7201	PTFE Mixed Graphite Packing	Coil packing of PTFE yarn, integrated with graphite and lubricant, then braided into square cross section	Optimum seal for rotary pump shaft. Can be used as rotary machine shaft seal depending on operating conditions. Temperature limit: 260°C	Thickness: 6 ~ 25mm Length: 3m
		7202	PTFE Mixed Graphite Packing	Coil packing of the same yarn as No.7201, braided into square cross section	Similar to No.7201 in characteristics. Optimum as seal for rotary machine shafts, particularly of large-diameter and heavy-load machines such as mixer. Temperature limit: 260°C	Thickness: 6.5 ~ 25mm Length: 3m
		7202E	Graphite Mixed VALFLON Fiber Coil Packing	No.7202E is a low-cost coil packing with the same structure as No.7202.	It has almost the same characteristics as 7201 and is ideal for a shaft seal for rotary pumps. It may also be used as s shaft seal for rotary equipment depending on the conditions of use. Temperature limit: 260°C	Thickness: 5 ~ 25mm Length: 3m
		7202W	Filler Mixed VALFLON Fiber Coil Packing	Coil packing made of PTFE fiber integrated with white filler and lubricating oil and braided into a square cross-section.	Ideal for a shaft seal for rotary pumps for food and medicine industries that should avoid contamination. It may also be used as s shaft seal for rotary equipment depending on the conditions of use. (Conforms to the Notices of the Ministry of Health and Welfare No.20 and 370.) Temperature limit: 260°C	Thickness: 3 ~ 25mm Length: 3m
		7203	PTFE Mixed Graphite Packing	Version of No.7202 coil packing whose corner part is made up of alamid yarn	Equivalent to No.7202 in characteristics. Optimum as seal for rotating or reciprocating machine shaft under high pressure and high load. Temperature limit: 260°C	Thickness: 6.5 ~ 25mm Length: 3m
		7232	PTFE Packing	Coil packing of PTFE yarn, processed by PTFE dispersion and braided into a square cross section	Resisting to almost all fluids. Optimum as shaft seal for rotating machines, such as mixing machine, handling corrosive fluid. Can be used as shaft seal for valves and reciprocating machines, depending on operating conditions (Ministry of Health, Labor and Welfare's notices No.20 and No.370 applicable). Temperature limit: 260°C	Thickness: 3 ~ 25mm Length: 3m
		7233	PTFE Packing	Coil packing of PTFE yarn, processed by PTFE dispersion and braided into a square cross section	Resisting to almost all fluids. Optimum as shaft seal for valves, handling corrosive fluid (MHLW's notices No.20 and No.370 applicable). Temperature limit: 260°C	
		7262	PTFE Packing	Coil packing of PTFE yarn, processed by PTFE dispersion and braided into a square cross section	Resisting to almost all fluids. Optimum as shaft seal for rotary pumps, handling corrosive fluid. Can be used as shaft seal for valves. Temperature limit: 260°C	Thickness: 3 ~ 25mm Length: 3m

Gland Packing



<div><p>8137</p></div> <div><p>8201</p></div>	Synthetic Fiber • Other	VALQUA No.	Name	Description	Application	Size
		8132	Alamid Fiber Mixed Inorganic Fiber Coil Packing	Coil packing made of blended yarn of aramid fiber and artificial inorganic fiber treated with PTFE dispersion, braided into a square cross-section and finished with PTFE dispersion and lubricating oil.	Ideal for a shaft seal for rotary pumps as an alternative to No.7132 for paper industry where black color should be avoided. It may also be used as s shaft seal for rotary equipment depending on the conditions of use.	Thickness: 3 ~ 25mm Length: 3m
		8133	Alamid•Inorganic Coil Packing	Coil packing of blended alamid and artificial inorganic yarn, processed with PTFE dispersion and inorganic filler, then braided into square cross section and finished by PTFE dispersion	Used as shaft seal for general-purpose valves handling water and oily fluid. Temperature limit: 260°C	Thickness: 3 ~ 25mm Length: 3m
		8133L	Alamid•Inorganic Coil Packing	Coil packing of blended alamid and artificial inorganic yarn, processed with PTFE dispersion and inorganic filler, then braided into square cross section and finished with PTFE and lubricating oil	Similar to No.8133 in characteristics. Optimum as shaft seal for general-purpose valves handling gaseous fluids in particular.	Thickness: 3 ~ 25mm Length: 3m
		8137	Alamid•Inorganic Coil Packing	Coil packing of blended alamid and artificial inorganic yarn, processed by PTFE dispersion, then braided into square cross section	Used as shaft seal for rotating machines, rotary and reciprocating pumps, and vales handling acid, alkali, solvent, oil, general gas, hydrocarbon, etc. Temperature limit: 260°C	Thickness: 3 ~ 25mm Length: 3m
		8201	Alamid Coil Packing	Coil packing of alamid yarn, impregnated with PTFE dispersion and lubricant, then braided into a square cross section	Used as shaft seal for rotary pumps for urban drainage, sewage, slurry, etc. Can be used also for valves and reciprocating machine shafts. Temperature limit: 260°C	Thickness: 3 ~ 25mm Length: 3m
		8201NL	Alamid Coil Packing	Version of No.8201 coil packing without lubricant	Equivalen to No.8201 in characteristics. Optimum as shaft seal for mixers and other rotating machines. 260°C	Thickness: 3 ~ 25mm Length: 3m
		1110	Aluminum Foil Spiral Packing	Aluminum ribbon, impregnated with lubricant, then braided into a spiral shape	Used as valve stem seal for hot oil, heat medium oil, steam, organic solvent, etc. Normally used as packing for header of VF-10 and VF-20. Temperature limit: 350°C	Thickness: 3 ~ 25mm Length: 3.65m spiral roll

Mechanical Seal





<div><p>Mechanical Seal</p></div> <div><p>Bellows Seal</p></div> <div><p>Diaphragm Seal</p></div>	Mechanical Seal	(VS1)	Mechanical Seal	Mechanical seal for rotating parts of pumps and other industrial equipment. The products are available in two types (E and R), which differ each other in seat ring bonding method is different, but are identical in rotary unit. E series: seat-ring tightening construction, for pumps R series: seat-ring floating construction, for general machinery	Application				Size
	Bellows Seal	(VS1)	Bellows Seal	Mechanical seal incorporating dynamic bellows. Available are rotary type and static type.	Style No.	Pressure Limit	Temperature Limit	Production Limit	Application
					EVUM EOUM	1.18MPa { 12kgf/cm ² }	250	E series ø20~ø110mm	Low-pressure balanced type standard mechanical seal. Used as seal for low/medium/high speed rotation, for volute pumps, geared pumps, and centrifuges.
					EVBM EOBM	2.94MPa { 30kgf/cm ² }	200	R series ø20~ø160mm	Medium-pressure balanced type standard mechanical seal. Used as seal for low/medium/high speed rotation, for single- and multi-stage volute pumps and general equipment.
	Diaphragm Seal	(VS1)	Diaphragm Seal	Mechanical seal employing diaphragm to cope with a wide range of equipment installation tolerance. Available are two types: for fluid and for powder.	HEVBM	2.45~3.92MPa { 25~40kgf/cm ² }	250	ø20~ø110mm	High-pressure balanced type standard mechanical seal. Used as seal for high-pressure low/medium/high speed rotation, for boiler-feed-water pumps, high-pressure circulating pumps, etc.
					VDM	1.18MPa { 12kgf/cm ² }	300	ø20~ø90mm	Low-pressure unbalanced type double-seal mechanical seal. Used as seal for volute pumps handling slurry-containing liquid, solidifying liquid, hazardous material, etc.
					BSBN	1.18Pa { 12kgf/cm ² }		ø20~ø70mm	Low-pressure balanced type mechanical seal employing welded- metal bellows. Used as seal for low/medium/high speed pumps and centrifuges, handling heat carrier oil and liquefied gases.
					DOUN	0.2MPa { 2kgf/cm ² }	150	ø35~ø150mm	Low-pressure and low-speed mechanical seal using diaphragm. Used as seal for long horizontal mixers, screw feeder s, dryers, washers, dyeing machines, etc. handling liquid, gas, and powder. Axial runout: max. 3 mm Eccentricity: max. 1 mm Perpendicularity: max. 1.5 mm
					PDOUN	0.05MPa { 0.5kgf/cm ² }		ø30~ø145mm	








Supplement product for seal

<div></div> <div>Gasket Paste</div> <div></div> <div>Gasket Cutter</div>	Gasket Paste	VALQUA No.	Name	Description	Application	Size
		(SEALP)	Sealing Paste	Light brown paste, containing nondrying oil adhesive, inorganic filler, and small quantity of solvent compounded	Sealing additive for gasket for joints, handling water, air, gasoline, kerosene, lubricating oil, natural gas, LPG, refrigerant, hydrogen sulfide, hydrocarbons, etc. Improved sealing performance and detachability. Temperature limit: 300°C	800g ; metallic canned (with brush)
		(PSVO)	NEW VALFLON Paste	Fluororesin powder that is water-dispersed using surfactant.	Sealing coadjuvant for gaskets used in junctions that handle highly corrosive fluid such as strong acid, strong alkali and halogen or oxygen gas. It enhances sealing strength. Temperature limit: 300°C (under oxygen gas of 100°C)	100 g metal tube 1 kg polyethylene can
		(PS5)	Gasket Paste (No.5, No.5M)	Black paste, containing graphite corpuscle compounded with oil-soluble adhesive. White paste containing corpuscle (No.5M) is also available.	Sealing additive for gasket for joints, handling water fluid, acid, alkali, salt solution, alcohol, etc. Improved sealing performance and detachability. Temperature limit: 200°C	2.5 kg polyethylene can
		(PS6)	Gasket Paste (No.6, No.6M)	Black paste, containing graphite corpuscle compounded with water-soluble adhesive. White paste containing corpuscle (No.6M) is also available.	Sealing additive for gasket for joints, handling water petroleum oil, oil gas, solvent, solvent vapor, LNG, general gases, etc. Improved sealing performance and detachability. Temperature limit: 900°C	2.5 kg polyethylene can
	Cutter • Other	(CUTTER)	Gasket Cutter (Form AI)	Kit to cut gasket material sheets	Cutter kit for cutting gasket sheet of required dimensions for temporary usage on site. Cutting diameter 10-540 mm (maximum 1,000 mm with optional tool)	
		(TOOL)	Packing Tool	Kit consisting of various tools to pull out and insert gland packing	Kit composed of jigs to facilitate replacing gland packing. Thickness of gland packing should be over 8 mm.	
		(LEAK)	LEAKMIL	Leakage detecting liquid contained in a pressurized spray can	Detecting liquid is sprayed to a sealed part of pressure vessel or piping, to identify foaming that indicates gas leakage.	Contents : 220cm ³



Fluorocarbon resin corrosion resistance product

<div>  <p>7042-P</p>  <p>7042 Lined pipes</p>  <p>7042-C</p>  <p>7042-GP</p> </div>	VALQUA No.	Name	Description	Application	Size
	7042-P	VALFLON Lined Pipe (Straight)	PTFE or PFA tube is inserted into steel pipe (STPG, SGP, SUS) and its both ends are flared outward	<p>Used on corrosive acid or alkali lines <Handling hydrochloric acid></p> <ul style="list-style-type: none"> • Byproduct hydrochloric acid recovery line • Line handling unreacted hydrochloric acid as product • Line handling hydrochloric acid as catalyst or promoter • Line handling wet chloride or chlorohydrin • Line where supplied hydrochloric acid is converted to hydrochloride, which is then fed to the subsequent process • Lines generating hydrochloric acid through hydrolysis of metallic chloride <p>< Handling sulfuric acid></p> <ul style="list-style-type: none"> • Line to condense sulfuric acid • Line handling sulfuric acid as catalyst <p>< Handling both acid and alkali></p> <ul style="list-style-type: none"> • Line where sulfuric acid and caustic soda flow alternately <p>< Handling fluoric acid></p> <ul style="list-style-type: none"> • Line handling high-temperature hydrogen fluoride <p><Examples of applied industrial fields></p> <ul style="list-style-type: none"> • Line of semiconductor chemicals (contamination should be avoided) • Line handling food, drinking water, etc. • Line producing medicines 	Connection Flange: JIS 10K JPI class 150 Diameter: 15 ~ 450A, PS33
	7042-L	VALFLON Lined Pipe (90 elbow 45 elbow)	PTFE or PFA tube is inserted into elbow pipe and its both ends are flared outward. Or steel pipe elbow is lined directly with PTFE.		Connection Flange: JIS 10K JPI class 150 Diameter: 15 ~ 450A(90 elbow) 15 ~ 450A(45 elbow)
	7042-ST	VALFLON Lined Pipe (Tee)	Tee pipe lined with PTFE or PFA		Connection Flange: JIS 10K JPI CLASS 150 Diameter: 15 ~ 450A
	7042-RT	VALFLON Lined Pipe (Reducing Tee)	Reducing tee pipe lined with PTFE		Connection Flange: JIS 10K JPI CLASS 150 Diameter: 20 × 20 × 15A ~ 350 × 350 × 50A
			Reducing tee pipe lined with PFA		
	7042-C	VALFLON Lined Pipe (Cross)	Cross pipe lined with PTFE		Connection Flange: JIS 10K JPI class 150 Diameter: 25 ~ 300A
	7042-GP	VALFLON Lined Pipe (Instrument Tee)	Steel pipe lined with PFA		Connection Flange: JIS 10K JPI class 150 Diameter: 25 × 15A ~ 300 × 25A
	7042-CR	VALFLON Lined Pipe (Concentric Reducer)	Steel pipe equipped with PTFE liner		Connection Flange: JIS 10K JPI class 150 Diameter: 20 × 15A ~ 250 × 200A
	7042-ER	VALFLON Lined Pipe (Eccentric Reducer)	Steel pipe equipped with PTFE liner		Connection Flange: JIS 10K JPI class 150 Diameter: 20 × 15A ~ 250 × 200A
Lined Piping • Joint Piping	7042-S	VALFLON Lined Pipe (Spacer)	Steel pipe with PTFE tube inserted and both ends flared outward		Connection Flange: JIS 10K JPI class 150 Diameter: 15 ~ 450A
	7042-RS	VALFLON Lined Pipe (Reducing Flange)	Steel pipe equipped with PTFE liner		Connection Flange: JIS 10K JPI class 150 Diameter: 20 × 15A ~ 300 × 250A
	7042-BF	VALFLON Lined Pipe (Blind Flange)	Steel pipe with PTFE or PFA sheet attached to one side flange.		Connection Flange: JIS 10K JPI class 150 Diameter: 15 ~ 450A




Fluorocarbon resin corrosion resistance product

 <p>PTFE Lined Blow-in-Pipe</p>  <p>PTFE Spray Ball</p>  <p>PTFE Flexible Hose</p>  <p>PTFE Expansion Joint (molded)</p>  <p>PTFE Expansion Joint (Metal Jacketed)</p>	Tank Parts	VALQUA No.	Name	Description	Application	Size
		7043-A	VALFLON Lined Blow-in Pipe (Single Flange type)	Flanged steel pipe with its inside and outside lined with PTFE tube	Used for blowing chemical liquid or gas into a reaction oven etc. Used where vibration and bending stress are small.	Connection Flange: JIS 10K JPI class 150 Diameter: A-1: 15 ~ 300A A-2: 15 ~ 100A
		7043-B	VALFLON Lined Blow-in Pipe (Double Flange type)		Used for blowing chemical liquid or gas into a reaction oven etc. Used where vibration and bending stress may occur to some extent.	Connection Flange: JIS 10K JPI class 150 Diameter: B-1: 15 ~ 300A B-2: 15 ~ 100A
		7043-C	VALFLON Lined Drip Pipe	PTFE tube and metal-cored collar combined. PTFE tube and collar machined from PTFE sleeve are combined.	Used for dripping down chemical liquid etc. to liquid into a tank.	Connection Flange: JIS 10K JPI class 150 Diameter: C-1: 15 ~ 100A C-2: 15 ~ 100A
		7043-A 7043-B	VALFLON Dispersion Tube	No.7043-A or No.7043-B, with its tip drilled to form fine holes perpendicularly to the axial direction	Used for blowing and dispersing chemical liquid, gas, etc.	
Flexible Piping, Joint Piping		(7FZ1)	VALFLON Spray Ball	With a PTFE sphere mounted at an end of pipe, precisely drilled to form nozzle holes for washing the inside of tank	Used for washing the inside of reaction tank, mixing tank, or storage tank. Can be permanently kept installed inside a tank, in view of superior heat and chemical resistance properties of PTFE. Washing can be carried out quickly, which reduces the consumption of cleaning liquid.	Style Amount of water Ball diameter SB-50 15-30ℓ /min 22mm SB-80 30-70ℓ /min 48mm SB-100 70-100ℓ /min 71mm
		7041	VALFLON Flexible Hose (with Wire Braid)	PTFE hose, braided with stainless wire and provided with metal connectors at both ends	Used for absorbing dislocation, angular displacement, and vibration of steam, chemical, gas (non-flammable), and food piping as well as hydraulic machinery	Diameter: No.7041-N(With screw joint at both end): 3 ~ 50A -F(With Flange joint at both end): 15 ~ 100A -S(With Sanitary joint at both end)25 ~ 100A -L(With Lorry joint at both end)25 ~ 80A -C(With coupling joint at both end)15 ~ 100A -V(With VP clamp joint at both end)15 ~ 50A
		7046-1 -2	VALFLON Pliable Hose	PTFE hose, corrugated into spiral shape 7046-1: no flange 7046-2: flanges at both ends	Used for absorbing dislocation and angular displacement of steam, chemical, and food piping	Connection Flange: JIS 10K Diameter: 15 ~ 100A
		7800	VALFLON Machined Bellows	Bellows machined from PTFE sleeve. Low in spring rate and flexible in tap number.	Bellows for valves and measuring instruments. Can be used as expansion joint having a mouth piece.	Maximum OD: 1000mm
		7801	VALFLON Expansion Joint	A version of No.7800 equipped with flanges at both ends	Used as expansion joint for connecting PTFE-lined, glass-lined, and carbon-lined steel pipes.	Connection Flange: JIS 5K , 10K, JPI class 150 Diameter: 15 ~ 250A Maximum OD: 1000mm
		7803-1 -2 -3 -4	VALFLON Expansion Joint (Molded)	Bellows formed from PTFE hose. No.7803-1 basic -2 basic, with control ring -3 with outer jacket -4 thick-wall type	Used as pipe fittings to absorb dislocation of pipes No.7803-1 for general use -2 for general use, with control ring -3 for heat resistance and pressure resistance -4 for pressure resistance and vacuum	Connection Flange: JIS 10K, JPI class 150 Diameter: No.7803-1 15 ~ 100A -2: 125 ~ 400A -3: 40 ~ 400A -4: 25 ~ 400A
		7806-1 -2 -3	VALFLON Expansion Joint (Metal Jacketed)	PTFE molded bellows, coated with thin metallic sheet. No.7806-1 with sleeve -2 without sleeve -3 without sleeve, with inner rings	Used as pipe fitting that requires pressure resistance or heat resistance. 7806-3 is suitable for vacuum.	Connection Flange: JIS 5 , 10K, JPI class 150 Diameter: No.7806-1, -2: 25 ~ 400A No.7806-3: 80 ~ 400A

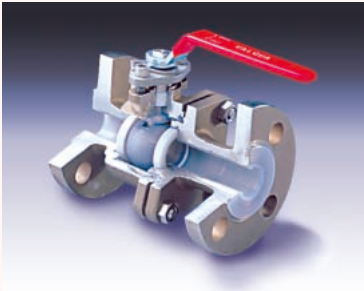
Fluorocarbon resin corrosion resistance product

<div><p>PTFE Tube</p></div> <div><p>Corrugated Tube</p></div>	Flexible Piping • Joint Piping	VALQUA No.	Name	Description	Application	Size
		7040	VALFLON Spaghetti Tube	PTFE tube. Some color versions are available.	Used for liquid chemical transportation	ID: ø 0.25 ~ ø 25mm Thickness: 0.15 ~ 2mm Length: 1 ~ 10m
		7040-P	VALFLON PFA Tube	PFA tube. Transparency of the tube allows to the flow content to be identified.		ID: 1.65 ~ 15.87mm Thickness: 0.76 ~ 1.6mm
		7040-EX	New VALFLON Tube	Thin wall PTFE tube which has good transparency, flex life and fusion bonding properties. Transparency of the tube allows to the flow content to be identified.		ID: ø 2 ~ ø 15mm Thickness: 0.5 ~ 1.0mm Length: 10m
		7040-EXF	New VALFLON Corrugated Tube	No.7040-EX shaped into bellows with constant intervals. Superior in bending	Used for conveying liquid chemicals. Compact piping is possible because of a small bending radius of the tube.	OD: ø 6, ø 8, ø 10mm Thickness: 1.0, 1.59mm Length: 10m
		7040-EXM	New VALFLON Marking Tube	No.7040-EX color-marked as piping tube. Marking in maximum 3 colors is possible.	Used for conveying liquid chemicals. Color combination allows lines to be easily identified.	OD: ø 2 ~ ø 16mm Thickness: 0.5 ~ 1.0mm, 1.5mm
		(7FH1) (7FH3)	VALFLON Heat Exchanger	Heat exchanger composed of PTFE tube bundle and honeycombs at both ends	Used for heating or cooling high purity chemicals and water, and corrosive chemicals.	ST Type (Shell Tube) LR Type (Loose Random) TM Type (Tightened module)

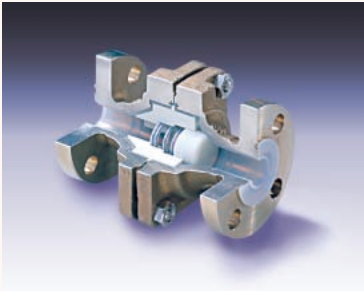
Fluorocarbon resin vessel

<div><p>PFA Over flow vessel</p></div> <div><p>PFA sheet lined tank</p></div> <div><p>PTFE sheet lined tank</p></div>	Simple Vessel	VALQUA No.	Name	Description	Application	Size
		(7BR563)	VAFLON Molded Vessel (PTFE)	Integrally molded PTFE vessel	PTFE properties, such as anti-corrosion, non-contamination, and heat resistance allow the vessel to be used for chemical processing and storage, metal plating, semiconductor manufacturing, physical and chemical research, experiment, etc.	Possible product size 40 × 520 × 230 H ~ 600 × 750 × 500H
		(7BR564)	VAFLON Molded Overflow Vessel(PTFE)	Integrally molded PTFE overflow vessel	Used as circulating chemical cleaning vessel for semiconductor manufacturing, and as chemical processing vessel for chemical industry and pharmaceutical production	Standard over flow vessel for 4-8" carrier
		(7BR573) (7BR574)	VAFLON Welding (Vessel) (Overflow Vessel)	Square vessel and overflow vessel, made of PTFE sheets, cut and assembled by welding		
		(7BR163)	VAFLON Molded Vessel (PFA)	Integrally molded PFA vessel	Used as storage or processing vessel for semiconductor manufacturing, physical and chemical research and experiment	190 × 220 × 200 H 250 × 250 × 235 H 390 × 290 × 265 H
		(7BR164)	VAFLON Molded Overflow Vessel (PFA)	Integrally molded PFA overflow vessel		
	Lined Vessel	(7BR162)	VAFLON Molded Bottle (PFA)	PFA molded bottle with outer shell	Used as high-purity chemical transportation vessel. Pressurized transportation is possible using the outer shell. Outer shell material: FRP/stainless steel	Capacity: 20 ℓ
		(7FR12)	VAFLON PFA Sheet Lined Vessel	Stainless steel or carbon steel vessel, internally lined with PFA glass back sheet. (FRP vessel is also available.)	Used as vessel or container for transporting high-purity chemicals and corrosive fluid	
		(7FR52)	VAFLON PTFE Sheet Lined Vessel	Stainless or steel vessel, internally lined with PTFE sheet. (FRP vessel is also available.)		

Valve



Lined Ball Valve



Lined Ball Valve

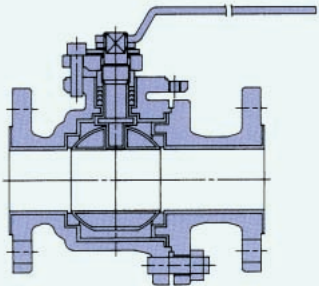


Cylinder Valve

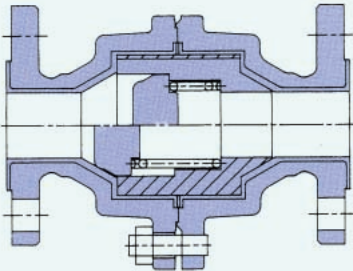


Cylinder Valve

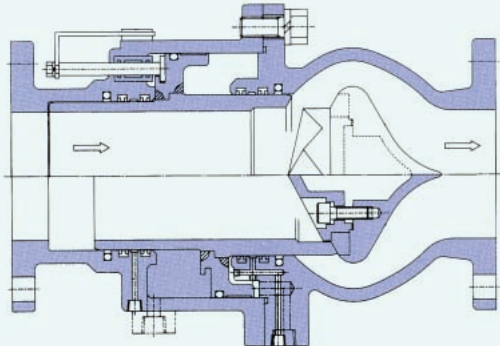
Lined Ball Valve • Cylinder Valve	VALQUA No.	Name	Description	Application	Size
	PF2 (7FC62A)	VALFLON (PFA) Lined Ball Valve	Ball valve, with all liquid-contact parts lined with PFA. Cost-efficient venturi type (PF2R), utilizing the superior performance of PF2, is also available.	Used on corrosive fluid which metal valves cannot withstand, on plant process piping where acid and alkali flow alternately, or where non-adhesive or fluid contamination should be avoided	Nominal pressure : 10K, class 150 Nominal size : 15 ~ 100A, 1/2 ~ 4B Material of metallic part : SCS13, FCD-S Available to manufacture jacket-attached regarding SCS13-made products
	PSC-20 (7FC31)	VALFLON Lined Check Valve (Spring Type)	Check valve, with the liquid-contact parts lined with PTFE or PFA. Can be installed on either horizontal or vertical piping.	Used on corrosive fluid which metal valves cannot withstand, and to prevent back flow on plant process piping where acid and alkali flow alternately	Nominal pressure : 10K, Class 150 Nominal size : 15 ~ 100A, 1/2 ~ 4B Material of Metallic Part : SCS13A,FCD-S
	(3FC16A) Two-way type (3FC16L) Three-way type	HS Type Cylinder Valve [Type] HS2: Two-way valve HS3:Three-way valve	Compact and light-weight valve, with operating air cylinder integrated with the valve body. Small air consumption and long-term stable sealing performance.	Used on cooling water for ironworks rolling mill, utilizing the high-frequent quick operating performance. Can be used also for powder or pellet line.	Nominal pressure : 10, 20K, Class 150, 300 Nominal size : 15 ~ 350A, 1/2 ~ 14B Material of Metallic Part : SCS13



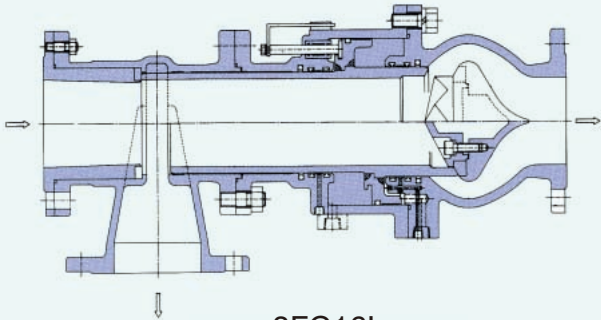
PF2



PSC-20







3FC16A (Two-way type)
Style : HS2




3FC16L
Style : HS3

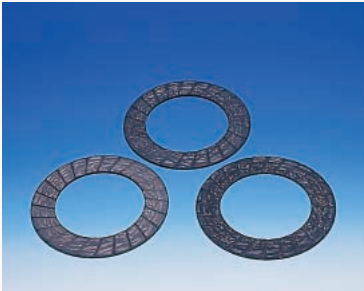

Expansion Joint

<div><p>Flector NE</p></div> <div><p>DYNAMIC BELLOWS</p></div> <div><p>DYNAMIC BELLOWS (M Series)</p></div> <div><p>DYNAMIC BELLOWS (cut)</p></div>	Non Metallic Bellows	VALQUA No.	Name	Description	Application	Size
	Non Metallic Bellows	(FLEX)	Flector NE Fletor	Expansion joint, made of various kinds of cloth (reinforced) lined with synthetic rubber on both sides, then shaped into designated form. Connection may be angle flange type, flare type, band binding type, etc.	Used on equipment, piping, and duct for fossil or nuclear power plants, iron or steel making plants, petrochemical or chemical plants, paper and pulp plants, and industrial waste plants. Temperature limit: 500°C (up to 1,200°C with castor lining) Pressure limit: 5,000 mm A _g	Manufacturing range : Optional
		(PRBT)	Penetration Rubber Boots	Nylon cloth, lined with chloroprene rubber, EPDM rubber or silicone rubber on both sides, then shaped into designated form. Fastener connection. Band binding for connecting a mating component.	Used on inside wall of c nuclear power plant building, and for sealing clearances around piping laid through floor. Temperature limit: 250°C (up to 600°C with heat insulation) Pressure range: 3,000 mm A _g , -1,000 mm A _g	Manufacturing range : Optional
		(XP221)	JYABARA	Bellows, made up of various types of material processed into a designated form and provided with inner and outer rings	Used for vibration absorption for equipment and piping in various industries and as flexible hose. Temperature limit: 500°C Pressure limit: 0.098 MPa {1kgf/cm ² }	Manufacturing range : Optional
	Metallic Bellows	(3DW)	Dynamic Bellows	Metal welded bellows consisting of sheet metals molded into a ring of S or Y-shaped cross-section and welded at the inside and outside diameters.	Used in stem seals for various types of valves, vacuum drive seals in semiconductor production equipment, expansion pipe joints for vacuum sealing of accelerators and nuclear fusion equipment and mechanical seals for oil control and pulsation dampening due to its flexible stretchability and spring constant. Pressure range: extremely high vacuum to 49 MPa [500 kgf/cm ²]	Manufacturing range: Inside diameter: 3-1,000 mm dia. (2,000 mm sq.) Thickness: 0.03-1.0 mm Configuration: circle, ellipse, square Number of folds: optional Material: SUS (304, 304L, 316, 316L, 321, 347), AM-350, Inconel, hastelloy, titanium, Monel and others
		(3DW)	Dynamic Bellows (V Series)	Standard metal welded bellows consisting of desired number of blocks with a free length of 10 mm to ensure ease of use depending on the required amount of expansion.	Used in a variety of equipment based on a combination of standard size and number of blocks. Pressure range: Differential pressure 0.098 MPa [1 kgf/cm ²]	Manufacturing range: Inside diameter: 8-210 mm dia. Standard material: SUS304 (Substandard SUS316L)
		(3DW)	Dynamic Bellows (M Series)	Metal welded bellows that have been developed using structural analysis technology and offer a long service life at a low cost.	Used in drive seals for vacuum equipment, semiconductor production equipment and bellows cylinders, bellows pumps and manipulators.	Standard dimension: Inside diameter: 8-50 mm dia. Standard material: SUS316L
		(3DU)	Dynamic Bellows Pump	Pneumatic carrier pump using dynamic bellows. The bellows construction excludes minglement of oil or carbon and ensures supply of pure gas without altering gas properties.	Used in biological instrument, analyzers for monitoring air pollution, nuclear equipment, medical equipment, emission analyzers for automobiles, vacuum equipment, high-purity gas circulation systems and analyzers.	Standard models: VP-016 (16 l/min) VP-040 (40 l/min)

Slip Material

<div><p>PTFE Tape Liner</p></div>	Bearing	VALQUA No.	Name	Description	Application	Size
		7500	VALFLON Bearing	Bearing made of filled PTFE, molded into a designated shape. Available are filler materials to be selected for application.	Used as oilless bearing for equipment and machinery	
		7980	VALFLON Tape Liner	Tape made of filled PTFE, molded into a shape	Used as oilless rotating shaft bearing for equipment and machinery	
	Lubricant	(FLAKEG)	Flake Graphite	Scale-shaped selected pure graphite	Used for lubrication of rotational face	2.5kg, 5kg, 10kg
		(UNONS)	Unon S	Spray type dry lubricant, made of PTFE fine particles mixed with a small quantity of binder	Used to release or improve slippage of furniture, housing, spinning machines, and equipment, particularly where contamination should be avoided	390ml
		(UNONN)	Unon N	Lubricant applicable with brushing, made of PTFE fine particles mixed with a small quantity of binder		1 ℓ , 15 ℓ
		(UNONP)	Unon P	Powder lubricant, made of pulverized fine PTFE powder. Available are P-300 and P-310 depending particle size distribution.	To be added to various plastics and rubber to improve friction property and forming flexibility	20kg

Friction

<div><p>Clutch Facing</p></div> <div><p>Friction Washer</p></div>	Clutch Facing	VALQUA No.	Name	Description	Application	Size
		(6SC22)	Non-Asbestos Clutch Facing(VS80F)	Glass fiber base, filled with heat-resisting resin, rubber, and friction improving agent, then hot formed	Used for automobile clutch, with high heat resistance and superior feeling	OD: ø 160 ~ ø 430
			Non-Asbestos Clutch Facing(VS60)	Glass fiber base, filled with resin, rubber, friction improving agent, etc., then hot formed	Used for automobile clutch lining and brake motor clutch lining	OD: ø 160 ~ ø 240
	Friction Washer	(792NA)	Non-Asbestos Friction Washer (NAH44)	Organic fiber, resin and rubber, with friction improving agent compounded, then hot formed and punched out	Used as automobile friction material and as washing machine brake material	OD: ø 20 ~ ø 150
			Non-Asbestos Friction Washer (NAH67A)	NAH44 base, impregnated with solid lubricant to stabilize middle to high micro-level frictional coefficient	Used as automobile friction material	OD: ø 20 ~ ø 150
			Non-Asbestos Friction Washer (NAH85)	NAH67A base, filled with inorganic fiber to stabilize frictional coefficient under high load		OD: ø 20 ~ ø 150
			Non-Asbestos Friction Washer (NAH47)	Washer with stabilized middle to high micro-level frictional coefficient to improve abrasion resistance	Used mainly for automobile, and applicable for other purposes	OD: ø 20 ~ ø 150

Insulation

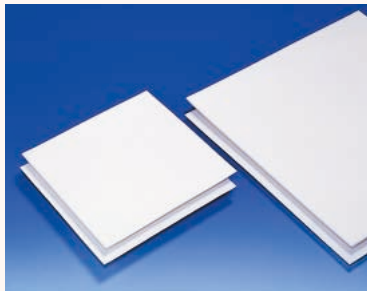




Tape	VALQUA No.	Name	Description	Application	Size
	7900	VALFLON Skived Tape	Tape made of formed PTFE material. Superior in heat resistance, weathering stability, chemical resistance, electrical characteristics, less adhesive ness, and frictional performance.	Used as high-frequency and heat resisting electric insulation tape. Applicable as seal, sliding pad, heat seal, etc.	Thickness: 0.038 ~ 1.5mm Width: 6.5 ~ 1300mm Length: 1 ~ 100m
	7910	VALFLON Adhesive Tape	Version of No.7900 with adhesive agent applied to one side	Used for electric insulation of wires, cables and coils, for binding wires around electric furnaces, for binding instrument wires in chemical plants, for heat sealing, for plastic mold release, for food industry conveyor belt, hopper and shooter.	Thickness: 0.08 ~ 0.23mm Width: 13 ~ 250mm Length: 10m
	7990	VALFLON Both Side Cementable Tape	Version of No.7900 processed so that both sides can be bonded	Used as electric insulation tape	Thickness: 0.038 ~ 1.5mm Width: 6.5 ~ 1300mm Length: 1 ~ 100m
	7991	VALFLON One Side Cementable Tape	Version of No.7900 processed so that one side can be bonded	Used as electric insulation tape and for pasting of parts where low adhesiveness is required	
	7900-S	VALFLON High Strength Tape	Version of No.7900 with improved tensile strength and electrical insulation properties	Used for insulation of motors and electric transformers, coil separators, spacers, and condensers	Thickness: 0.02 ~ 0.1m Width: 19 ~ 280mm Length: 50 ~ 100m
	7910-S	VALFLON High Strength Adhesive Tape	Version of No.7900-S with adhesive agent applied to one side		Thickness: 0.08 ~ 0.18mm Width: 25 ~ 280mm Length: 10, 33m
	7990-S	VALFLON Both Side Cementable High Strength Tape	Version of No.7900-S processed so that both sides can be bonded		Thickness: 0.02 ~ 0.1m Width: 19 ~ 280mm Length: 50 ~ 100m
	7991-S	VALFLON One Side Cementable High Strength Tape	Version of No.7900-S processed so that one side can be bonded		
	7940	VALFLON Unsintered Tape	PTFE rolled as unsintered	Used for electric insulation of heat-resistant wires and cables	Thickness: 0.08 ~ 0.10mm Width: 4~ 25mm Length: 100m
	7920	VALFLON Impregnated Glass Fiber Fabric	Glass fabric cloth base impregnated with PTFE and sintered. Superior in mechanical strength and low adhesiveness	Used for electric insulation, mold releasing material, and conveyor belts	Thickness: 0.08 ~ 0.25mm Width: 13 ~ 1000mm Length: 10 ~ 100m
	7921	VALFLON Impregnated Glass Fiber Fabric (one side cementable)	Version of No.7920 processed so that one side can be bonded	Used for electric insulation and for bonding where low adhesion is required	
	7922	VALFLON Impregnated Glass Fiber Fabric (both side cementable)	Version of No.7920 processed so that both sides can be bonded	Used for electric insulation	
	7925	VALFLON Impregnated Glass Fiber Fabric Adhesive Tape	Version of No.7920, with one side processed and coated with adhesive agent	Used for electric insulation and as mold releasing sheet	Thickness: 0.13 ~ 0.18mm Width: 13 ~ 250mm Length: 10m

Insulation

<div></div> <div></div>	Tube, Coaxial Cable	VALQUA No.	Name	Description	Application	Size
		7040	VALFLON Spaghetti Tube	PTFE tube. Colored type is also available.	Used to sheath wiring of electronic and telecommunication devices, and to protect lead wires of motor and transformers that require heat resistance	ID: 0.25~112mm Thickness: 0.25~2mm Length: 1 • 5 • 10 m
		7040-P	VALFLON PFA Tube	PFA tube with superior transparency, which allows the inside content to be identified	Transparency allows the inside content to be identified. Used for transportation piping for high-purity chemicals.	ID: 1.65~15.87mm Thickness: 0.76~1.6mm
		7044	VALFLON Thermo Shrinkable Tube	PTFE, PFA, and FEP thermo shrinkable tubes	Used for electric insulation and as industrial roll covers	
		7BG1391	VALFLON PFA Inside Cementable Thin Wall Tube	PFA thin-wall tube, with the inside chemically processed for improved adhesion. Liquid-ammonia treatment offers improved heat resistance, durability, and adhesiveness. Electro-conductive type is also available.	Used as fuser roll covers for office equipment (LBP, copiers, etc.)	OD: 15.0mm~ Thickness: 30μm~
		7BG138	VALFLON PFA Tube with Inner Surface Treated with Liquid Ammonia and Relaxed Folds	Thin wall PFA tube with chemically treated inner surface to provide adhesivity. The tube is folded softly and folds are relaxed.	Used in fixing roll covers for office equipment (high resolution, color LBPs and copiers).	Consult with us separately for specific dimensions.
		7047	VALFLON Semi-rigid Coaxial Cable	PTFE used for insulation and metal seamless pipe for outside conductor, which gives almost theoretical shielding effect and precise characteristic impedance, incomparable with other cables	Used for high-frequency transmission circuit for radio equipment, portable phone, satellite communication devices, and measuring instruments	Consult with us separately for specific dimensions and availability of sheaths. * For details, see the specific catalog.
		7047C	VALFLON Semi-rigid Coaxial Cable with Connectors	Above cable provided with connectors and subjected to bending		
		7048	VALFLON Semi-Flexible Co-Axial Cable	It has similar transmission characteristics as the semi-rigid cable, but it is very convenient to use since there is no need to work it into a cable with desired configuration and size using tooling and jigs.	It is a cable positioned between the semi-rigid and flexible co-axial cables. Used in mobile equipment and microwave and millimetric wave equipment and measuring instruments due to its easy routing of equipment wires in a confined space.	
		7048C	VALFLON Semi-Flexible Co-Axial Cable with Connector	Same as 7048 except that a connector is attached.		
7049	VALFLON Low-Loss Semi-Rigid Co-Axial Cable	It has a lower transmission loss than the semi-rigid co-axial cable and is suitable for use at a higher frequency.	Used in radio equipment, communications equipment and communication measuring instruments that use microwave and millimetric wave. Especially for use in areas where lower loss transmission characteristics are required than conventional semi-rigid cables.	50 Ohm series: Outside diameter of 2.13 - 3.38 mm * Consult with us separately for other outside diameters.		
7049C	VALFLON Low-Loss Semi-Rigid Co-Axial Cable with Connector	Same as 7049 except that a connector is attached and bent.				

Fluorocarbon Resin • Engineering Plastics

<div><p>PTFE Sheet</p></div> <div><p>PTFE Rod</p></div> <div><p>PP Box</p></div>	Material	VALQUA No.	Name	Description	Application	Size
		7000	VALFLON Sheet	PTFE sheet. Filler mixed version and CTFE (trifluoride) version are also available on request.	Material for machining	Thickness: 1.0~50.0mm Size: 200~1500mm(Sq)
		7600	VALFLON Block and Sleeve	PTFE column. Filler-mixed versions are also available.		OD: ø 10~ø 1000mm ID: ø 10~ ø 950mm Length: 40~200mm
		7601	VALFLON Rod	PTFE rod		Diameter: ø 4~ ø 100mm Length: 1000mm(Above 1000mm on request)
		7602	VALFLON Rod	PTFE small-diameter rod		Diameter: ø 1~ ø 3mm Length: 1000mm(Above 1000mm on request)
	Molded Product	(7BG11)	VALFLON PFA Molded Products	PFA injection molded product	Wafer carriers, square tanks, drain boards, LED molding cavities	
		7170	VALFLON PFA Bolt and Nut	PFA bolt and nut		M4, 5, 6..... cylinder head bolts, flat head bolt M8.....hexagonal screw
		(7BG11)	VALFLON Barcode Card	PFA card for barcode identification	Used for identification of wafer carriers and control tags for factory automation and material handling	Size (Maximum): 55 × 86mm Barcode digit: from 4 digit to 6 digit
		(8BG11G)	PP General Molded Products	Polypropylene injection molded product	Used as plastic parts for semi-conductor and automobile industries	
		(8BG11B)	PP Box	Polypropylene injection molded box	Wafer carrier transportation boxes	
		(8BG11C)	PP Carrier	Wafer cassette, polypropylene injection molded	Available are assembled and integral cassettes for containing wafers.	
		(ENPLA)	Engineering Plastic Molded Products	High-functionality plastics such as PPS, PEEK , PEI, and Econole, molded into a specified shape.	Plastic parts for semiconductor, automobile, liquid crystal, electrical, and construction machinery industries	

Elastomer Product



TOUGHRETHANE TUBE, HOSE



TOUGHRETHANE Roller



TOUGHRETHANE keyboard Sheet



TOUGHRETHANE Airbags

Molded Product	VALQUA No.	Name	Description	Application	Size
	E9015	TOUGHRETHANE Hydrant Packing	Thermo-plastic polyurethane, molded into designated shape and size.	Long-life packing for waterworks hydrant. Superior in tear strength, abrasion resistance, and durability.	
	E9040	TOUGHRETHANE Tube Hose	Thermo-plastic polyurethane, molded into tube or hose shape. Twin-spectacle tube and irregular multiple tube are also available.	Used for air pressure equipment piping, piping of medical and food facilities	ID: ø 2 ~ ø 15 (Thickness 0.5~2mm) Hose: ø 20 ~ ø 90 (Thickness 0.4~0.8mm)
	E9060	Valve Sheet	Thermo-plastic polyurethane, molded into designated shape and size. Superior in abrasion resistance.	Used as seal for relief, change-over, and check valves as well as cylinder valves	
		Wiper	Thermo-plastic polyurethane, molded into designated shape and size. Superior in abrasion-resistance and tearing strength.	Used for splash guard for various machines	
		Roller	Thermo-plastic polyurethane, molded into roller shape. Metal-reinforced type is also available. Superior in abrasion resistance.	Used as door roller, skate roller, and escalator roller	
	E9210	TOUGHRETHANE Rope	Thermo-plastic polyurethane, molded into rope shape	Used as driving belt and hanger rope	OD: ø 2 ~ ø 10 Length: 50, 100m/ lot
		TOUGHRETHANE PICA-Rope PICA-Tube	Transparent colored tube and rope with fluorescent pigment. Available are in three cross-section types: circular, rhombic and star.	Used for fashion and sports	
	E9320	TOUGHRETHANE Casing Grip	Thermo-plastic polyurethane, molded into grip shape	Used as grip for bottle mouths during packaging at beer or refreshment plant	
	E9900	TOUGHRETHANE Film Sheet	Film or sheet of thermo-plastic polyurethane	Used as punched, printed or welded products, as well as diaphragms and conveyer belts, utilizing the mechanical strength, abrasion-resistance and flex strength	Thickness: 0.1~6mm Width: 500, 900, 1000, 1400mm No-yellowing type for weather resistance is also available.
	E9920	TOUGHRETHANE Laminated Film Sheet Products (Substrated)	No.E9900 base, laminated to various substrates	Used for airbed cells and marine jackets	
	E9960	TOUGHRETHANE Film Sheet Products	Thermo-plastic polyurethane sheet, processed by printing, punching, vacuum forming, high-frequency welding, etc. Superior in adhesion.	Used as switch (keyboard) surface sheet for dust-proof, water-proof cover, emblem, sacks (protection of equipment, air mat, and waterbed), and various protection cases	
	(9BG261)	TOUGHRETHANE Single Ball	Urethane ball, molded from tough thermo-plastic polyurethane into designated shape	Used for pin bearing (as silencer) and mill ball for mixing or grinding	OD: ø 3.2 ~ ø 25.4 Material for food industry use is also available.

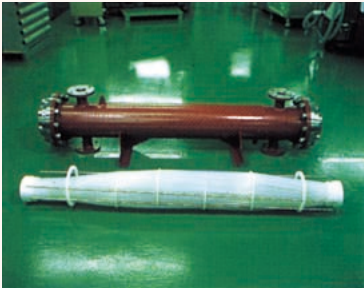
VALFLON Lined Device•Equipment



ISO Tank



Clean Room



PTFE Heat Exchanger

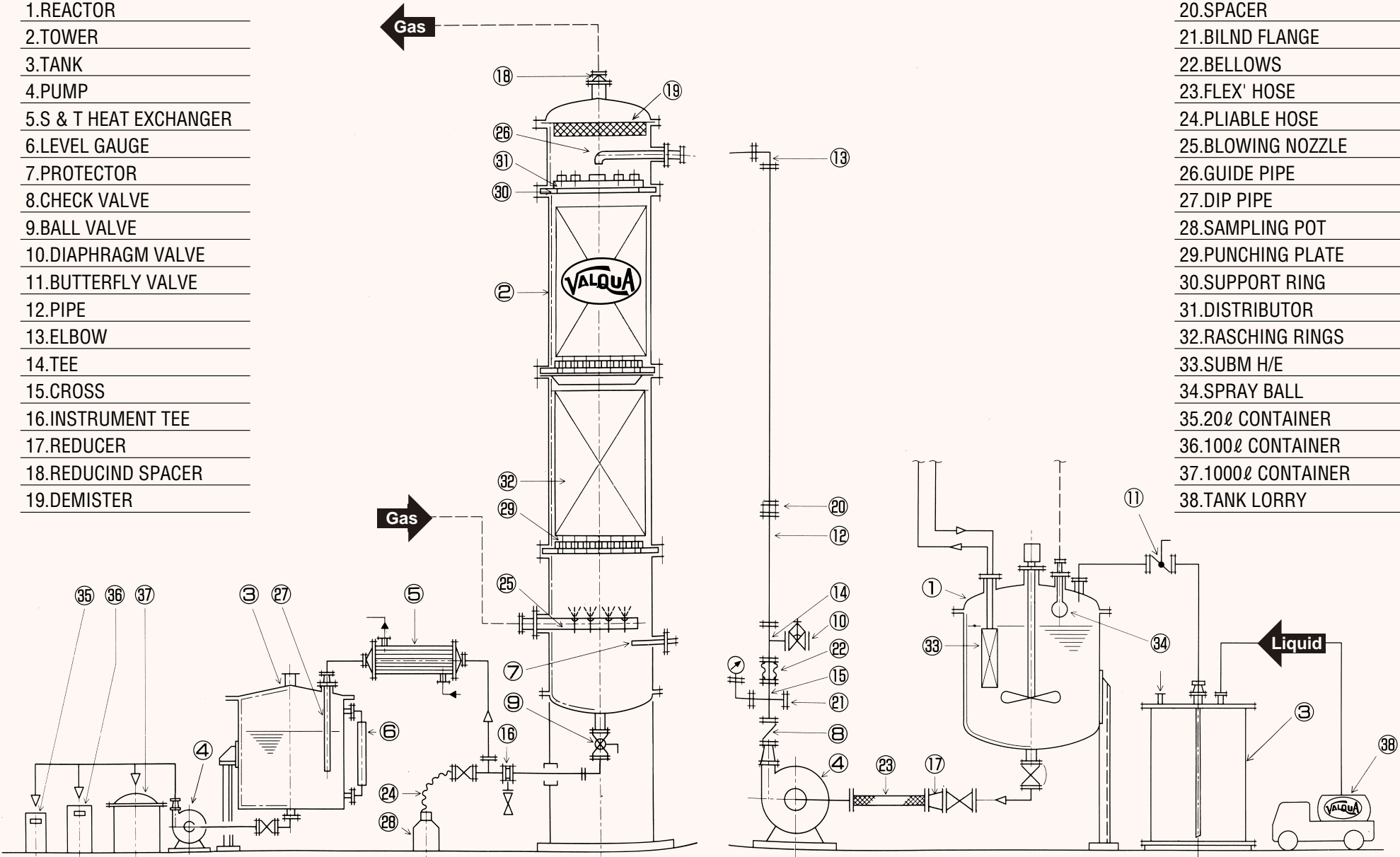


PFA Lined Ball Valve



VALFLON Lined Pipe

PART NAME
1.REACTOR
2.TOWER
3.TANK
4.PUMP
5.S & T HEAT EXCHANGER
6.LEVEL GAUGE
7.PROTECTOR
8.CHECK VALVE
9.BALL VALVE
10.DIAPHRAGM VALVE
11.BUTTERFLY VALVE
12.PIPE
13.ELBOW
14.TEE
15.CROSS
16.INSTRUMENT TEE
17.REDUCER
18.REDUCIND SPACER
19.DEMISTER



PART NAME
20.SPACER
21.BILND FLANGE
22.BELLOWS
23.FLEX' HOSE
24.PLIABLE HOSE
25.BLOWING NOZZLE
26.GUIDE PIPE
27.DIP PIPE
28.SAMPLING POT
29.PUNCHING PLATE
30.SUPPORT RING
31.DISTRIBUTOR
32.RASCHING RINGS
33.SUBM H/E
34.SPRAY BALL
35.20ℓ CONTAINER
36.100ℓ CONTAINER
37.1000ℓ CONTAINER
38.TANK LORRY



PTFE 1000 ℓ Container



PTFE 100 ℓ Container



PTFE Spray Ball



PTFE Heat Exchanger



PTFE Punching Plate



VALFLON Expansion Joint (Molded)



VALFLON Expansion Joint (Metal Jacketed)

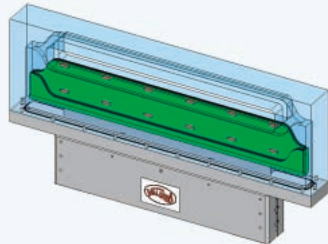





PTFE Flexible Hose






PTFE Dip Pipe

High Technology Device • Equipment

<div><p>Rectangle Gate valve</p></div> <div><p>Dynamic Bellows valve</p></div> <div><p>Slide shaft</p></div> <div><p>Clean bolt</p></div>	High Technology Device • Equipment	VALQUA No.	Name	Description	Application	Size																																								
		(3DG)	Rectangle Gate Valve	Gate valve equipped with a single action seal mechanism that can cope with back pressure.	Used as a gate valve to be positioned between chambers of liquid crystal production equipment and other vacuum equipment (rectangle opening). Especially suitable for large units such as liquid crystal equipment for large substrates. It can also cope with the substrate size of the 6th generation or later in case of liquid crystal equipment.	It can cope with an opening size of 600 mm wide or more																																								
		(3DU)	Dynamic Bellows® Cylinder	Rod seal cylinder with a drive seal made of Dynamic Bellows® M Series that excels in cleanliness, corrosion resistance and durability.	Used in a drive inside a chamber of semiconductor production equipment, liquid crystal production equipment and other vacuum equipment.	<div>Standard stroke [Unit of measure: mm]</div> <table><tr><th>Model</th><th>Stroke</th><th>Cylinder diameter</th><th>Rod diameter</th><th>Flange</th></tr><tr><td>VC50-20</td><td>20</td><td>50</td><td>15</td><td>CF70</td></tr><tr><td>VC50-30</td><td>30</td><td>50</td><td>15</td><td>CF70</td></tr><tr><td>VC50-50</td><td>50</td><td>50</td><td>15</td><td>CF70</td></tr><tr><td>VC63-30</td><td>30</td><td>63</td><td>15</td><td>CF70</td></tr><tr><td>VC63-50</td><td>50</td><td>63</td><td>15</td><td>CF70</td></tr><tr><td>VC80-50</td><td>50</td><td>80</td><td>20</td><td>CF114</td></tr><tr><td>VC80-75</td><td>75</td><td>80</td><td>20</td><td>CF114</td></tr></table>	Model	Stroke	Cylinder diameter	Rod diameter	Flange	VC50-20	20	50	15	CF70	VC50-30	30	50	15	CF70	VC50-50	50	50	15	CF70	VC63-30	30	63	15	CF70	VC63-50	50	63	15	CF70	VC80-50	50	80	20	CF114	VC80-75	75	80	20	CF114
		Model	Stroke	Cylinder diameter	Rod diameter	Flange																																								
		VC50-20	20	50	15	CF70																																								
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VC63-30	30	63	15	CF70																																										
VC63-50	50	63	15	CF70																																										
VC80-50	50	80	20	CF114																																										
VC80-75	75	80	20	CF114																																										
(3DU)	Slide Shaft	Feeder using magnet coupling technology. The driving mechanism may be selected depending on the application: manual, motor or air cylinder (air pressure).	Device that is ideal for transfer operations (linear and rotation) of samples inside a chamber of vacuum equipment and analytical instruments.	Standard stroke [Unit of measure: mm]																																										
(3DU)	Clean Screw Bolt	Hexagon socket head screw bolt made of JIS B 1176 compliant stainless steel (steel grade: A2) that is lapped by a special polishing process. It has an air bleeding hole, releases less gas and eliminates adhesion of fats on the surface. Its smooth surface roughness also eliminates dragging. Nuts, spring washers and flat washers are also available for clean room applications.	Ideal for use in semiconductor production equipment, liquid crystal production equipment and other vacuum equipment and analytical instruments, especially in a vacuum area (inside a chamber).	Standard size [Unit of measure: mm]																																										
(3DU)	Bellows Type Vacuum Transfer Mechanism Bellows Type Elevating Mechanism	Unit with a driving shaft of Dynamic Bellows® used to transfer a sample inside a chamber horizontally or vertically under a completely sealed state.	Used to transfer or position a sample or device in a chamber of semiconductor production equipment and liquid crystal production equipment.	Standard stroke (1) Vacuum transfer mechanism: Up to 1,000 mm max. (2) Elevating mechanism: Up to 850 mm max.																																										
(3DU)	Compact Linear Feeder	Used to transfer or position a sample in a chamber of a relatively small experimental unit or analytical instrument.		Standard stroke 25 mm, 50 mm																																										
(3DU)	Compact Rotary Feeder	Device to transfer rotary motion into vacuum equipment using angular displacement and displacement perpendicular to the axis.	Used in vacuum equipment, analytical instruments, radiation light and beam shutters.																																											

Heat Insulation Material

 VALQUATEX (Carbonized Fiber)	Fire Carbonization Resistance Fiber Product	VALQUA No.	Name	Description	Application			Size	
		101C	VALQUATEX C (yarn)	Yarn made of flame resisting carbonized fiber	Yarn				
		105C	VALQUATEX C (cloth)	Cloth made of flame resisting carbonized fiber	Valqua No.	Size	weight / roll (kg)	Length (m)	Application
		105CS	VALQUATEX C (cloth for spatter)	VALQUATEX filled with inorganic filler	101C	ø3,ø5,ø6.5,ø8,ø9.5 ø12.5,ø16,ø22,ø25	1.0	—	For filling gap of high-temperature area. Temperature limit: 250°C
 VALQUATEX (Glass Fiber)	Glass Fiber Product	112C	VALQUATEX C (ribbon)	Ribbon made of flame resisting carbonized fiber	101S	ø3~ø50	—	ø3 : 0.9kg/roll ø6~ø50 : over 1m, optional length	For processing various heat-resisting textile Temperature limit: 1,260°C
		102G	VALQUATEX G (rope)	Rope made of heat resisting glass braided to square cross section. Circular cross section is also available.	102SF	ø6~ø50	—	over 1m, optional length	For processing various heat-resisting textile Temperature limit: 600°C
		105G	VALQUATEX G (cloth)	Cloth made of heat resisting glass	102G	□6.4,□7.9,□9.5,□12.7 □15.9,□19.0,□22.0,□25.4	—	30	For processing various heat resisting textile Temperature limit: 350°C
		105GF	VALQUATEX G (cloth with wire)	Cloth made of heat resisting glass with wire	102S	□6.4,□9.6,□12.7 □15.9,□19.0,□22.0,□25.0	—	30	Sealing material for high temperature Temperature limit: 1,260–C
		112G	VALQUATEX G (ribbon)	Ribbon made of heat resisting glass	Cloth				
		112GA	VALQUATEX G (one-side aluminus ribbon)	Ribbon made of heat-resisting glass fiber, with aluminum foil on one side	Valqua No.	Thickness(mm)	Width(mm)	Length (m)	Application
 VALQUATEX (Ceramic Fiber)	Ceramics Fiber Product	112GC	VALQUATEX G (one-side adhesive ribbon)	Ribbon made of heat-resisting glass fiber, with adhesive on one side	105C	1.2	1000	30	Thermal shielding drapes, outside wall to keep warm/cold Temperature limit: 250°C
		101S	VALQUATEX S (yarn)	Yarn made of ceramic fiber	105CS	1.0, 1.5	980(1.0t) 950(1.5t)		For protection from spatter or welding spark; thermal shielding drapes
		102S	VALQUATEX S (Braided rope)	Braided rope made of ceramic fiber.	105G	0.5, 0.7, 1.7, 2.7	1000	30 (1.7t•2.7t) 50 (0.5t•0.7t)	Heat insulating material, thermal shielding drapes, heat resisting items. Temperature limit: 350°C
		102SF	VALQUATEX S (rope with glass fiber)	Circular-cross-section rope, with braided ceramic fiber core and glass-fiber integument	105GF	1.5		30	High-temperature insulation. Temperature limit: 1,260°C
		105S	VALQUATEX S (cloth)	Cloth made of ceramic fiber	105S	2.0			105S processed to prevent smoke
		105SN	VALQUATEX S (cloth treated to resist smoke)	Valquatex S cloth processed to prevent smoke	105SN	1.8	Ribbon		
		112S	VALQUATEX S (ribbon)	Ribbon made of ceramic fiber	Valqua No.	Thickness(mm)	Width(mm)	Length (m)	Application
		112SN	VALQUATEX S (ribbon treated to resist smoke)	Valquatex S cloth processed to prevent smoking	112C	1.0, 2.0	25,50,75	30	Heat insulating materials Temperature limit: 250°C
Silica Fiber Product	Silica Fiber Product	112KC	VALQUATEX K (one-side adhesive ribbon)	Ribbon made of high-purity silica fiber, with adhesive applied to one side	112G 112GA 112GC	0.4, 0.7	50, 75, 100	30	Heat/cold insulating materials for pipe and duct Temperature limit: 350°C
		1.7	25, 32, 38 50, 65, 75 100	Heat insulation for high temperature, adiabatic/heat/cold insulating materials Temperature limit: 1,260°C					
		2.7	25, 50, 75, 100			Same as 112S (processed for smoke prevention) Temperature limit: 1,260°C			
		112S		VALQUATEX S (ribbon)	Ribbon made of ceramic fiber	112S	2.0	45	Adiabatic material Temperature limit: 1,000°C
112SN	VALQUATEX S (ribbon treated to resist smoke)	Valquatex S cloth processed to prevent smoking	112SN	1.8					
					112KC	0.7, 1.3	50, 75, 100		

Industry for Vacuum

Applications/ Equipments	Valqua No.	Name	Characteristic
Vacuum equipment, gasket for piping Deposition apparatus Sputtering equipment Dry etching equipment CVD equipment Vacuum pumps Vacuum valves Ultra-high vacuum flange Coupling	4640	Fluoro Rubber O-ring	Rings of fluoro rubber formed into O-shaped cross-section and vacuum degasified. Applicable to ultra-high vacuum environment with significantly reduced released gas such as hydrocarbon.
	3640	Metal Hollow O-ring	Hollow metal O-ring made of stainless steel or other metal pipe, subjected to endless processing into specified dimensions. Used for super-high-vacuum, where rubber material cannot be used.
	3645	TRYPACK	C-shaped cross section ring, with coil spring as the elasticity element, coated thinly with metal such as aluminum and nickel. Superior to hollow metal ring in stability.
	560	High Purity Copper Gasket	Gasket made of oxygen-free copper (equivalent to ASTM F68 Class 1), which produces little outgassing, Used for bakable flange.
For Rotary Shaft	4560	WILLSON SEAL	Lip-type packing of fluororubber, molded into specified shape and size. Used as rotating shaft seal with large shaft runnout.
Used as a gate valve to be positioned between chambers of liquid crystal production equipment and other vacuum equipment (rectangle opening). Especially suitable for large units such as liquid crystal equipment for large substrates. It can also cope with the substrate size of the 6th generation or later in case of liquid crystal equipment.	(3DG)	Rectangle Gate Valve	Gate valve equipped with a single action seal mechanism that can cope with back pressure. Equipment specifications Service temperature range: Main body: Max 80°C Drive: Max 60°C External leak: 1.0×10^{-10} Pa · m ³ /s or less Internal leak: 1.0×10^{-10} Pa · m ³ /s or less Maximum number of operations: One million times (except sealing material) Valve opening and closing speed: 3s (Opening or closing action) Cylinder operation pressure: 0.4MPa
Used in drives located in chambers of semiconductor equipment, liquid crystal production equipment and other vacuum equipment	(3DU)	Dynamic Bellows Cylinder	Rod seal cylinder with a drive seal made of Dynamic Bellows® M Series that excels in cleanliness, corrosion resistance and durability.

Industry for Vacuum

Applications/ Equipments	Valqua No.	Name	Characteristic
Device that is ideal for transfer operations (linear and rotary) of samples inside a chamber of vacuum equipment and analytical instruments.	(3DU)	Slide Shaft	Feeder using magnet coupling technology. The driving mechanism may be selected depending on the application: manual, motor or air cylinder (air pressure). Dimensions and configuration Standard stroke [Unit of measure: mm] (1) VST-10 200, 400, 600, 800 (2) VST-12 200, 400, 600, 800, 1,000
Ideal for use in semiconductor production equipment, liquid crystal production equipment and other vacuum equipment and analytical instruments, especially in a vacuum area (inside a chamber).	(3DU)	Clean Screw Bolt	Hexagon socket head screw bolt made of JIS B 1176 compliant stainless steel (steel grade: A2) that is lapped by a special polishing process. It has an air bleeding hole, releases less air and eliminates adhesion of fats on the surface. Its smooth surface roughness also eliminates dragging. Nuts, spring washers and flat washers are also available for clean room applications.
Used to transfer or position a sample or device in a chamber of semiconductor production equipment and liquid crystal production equipment.	(3DU)	Bellows Type Vacuum Transfer Mechanism Bellows Type Elevating Mechanism	Unit with a driving shaft seal of Dynamic Bellows® used to transfer or position a sample inside a chamber horizontally or vertically under a completely sealed state. Dimensions and configuration Standard stroke (1) Vacuum transfer mechanism: Up to 1,000 mm max. (2) Elevating mechanism: Up to 850 mm max.
Used to transfer or position a sample or device in a chamber of semiconductor production equipment and liquid crystal production equipment.	(3DU)	Compact Linear Feeder	Used to transfer or position a sample or device in a chamber of a relatively small experimental unit or analytical instrument. Dimensions and configuration Standard stroke: 25 mm, 50 mm
Used in vacuum equipment, analytical instruments, radiation light and beam shutters.	(3DU)	Compact Rotary Feeder	Device to transfer rotary motion into vacuum equipment using angular displacement and displacement perpendicular to the axis.

Industry for Semi conductor

Applications/ Equipments	Valqua No.	Name	Characteristic
Vacuum drive seal and vacuum valve seal for silicone single crystal production equipment (CZ and FZ techniques)	(3DW)	Dynamic Bellows	Metal welded bellows consisting of sheet metals press-molded into a ring with S-shaped cross-section and fusion-welded at the inside and outside diameters to provide the required number of folds. A variety of materials may be used and the service life is longer.
Dry etching equipment, Vacuum drive seal and vacuum valve seal for plasma etching equipment and reactive ion etching equipment			
Vacuum drive seal and vacuum valve seal for ion implanters and diffusion furnaces			
Thin-film deposition systems Vacuum drive seal and vacuum valve seal for vacuum deposition equipment, sputtering equipment and C.V.D. equipment			
Reduction of out gas and particles generated from metal surfaces of vacuum equipment	(3DU)	Polished surface products	The material surface is mirror-finished by special polishing and chemical polishing.
Gasket for vacuum seal of impurity implanter device and film forming device	3640	Metal Hollow O-ring	Hollow metal O-ring made of stainless steel or other metal pipe, subjected to endless processing into specified dimensions. Surface-coated products, such as galvanized one, are available.
	3645	TRYPACK	C-shaped cross section ring, with coil spring as the elasticity element, coated thinly with metal such as aluminum and nickel. Superior to hollow metal ring in stability.
Gasket for piping of vacuum equipment, particularly for bakable flange	560	High Purity Copper Gasket	Gasket made of oxygen-free cupper, which produces little outgassing, processed into specified dimensions.
Elastomer seals for silicone single crystal pproduction system, epitaxial system, electron beam exposure system, plasma related system, ion implanter, vacuum evaporation system, sputtering system, cleaning equipment	4640	Fluoro Rubber O-ring	O-shaped cross section ring molded of fluororubber. Colored rings (white, brown, etc.) are also available.
	AC4640	ARMOR CRYSTAL O-ring	O-shaped cross section ring molded of new transparent fluororubber, which has been developed by Nippon Valqua with its unique rubber reforming technology. Superior in purity, plasma-resistance, and non-adherence to metal. Temperature limit: 150°C
	F4640	FLID O-ring	O-shaped cross section ring molded of black fluororubber and subjected to vacuum degassing. Superior to general-purpose fluororubber in purity, plasma resistance, and mechanical properties. Temperature limit: 200°C
	FA4640	FLID ARMOR O-ring	O-shaped cross section ring molded of black fluororubber and subjected to Nippon Valqua's unique rubber reforming technology. Superior in purity, plasma-resistance, and non-adherence to metal. Low frictional property of the surface makes the product superior in attaching/detaching property and resistant to abrasion, which allows the product to be used for dynamic sealing. Temperature limit: 200°C

Industry for Semi conductor

Applications/ Equipments	Valqua No.	Name	Characteristic
Elastomer seals for silicone single crystal pproduction system, epitaxial system, electron beam exposure system, plasma related system, ion implanter, vacuum evaporation system, sputtering system, cleaning equipment	SA4640	SPOQ ARMOR O-ring	New fluoro rubber made by molding white fluoro rubber into a ring with O-shaped cross-section using Nippon Valqua's proprietary rubber modification and adulteration technology. It excels in resistance to oxygen, plasma and adhesion resistance against quartz. It may be used in dry etching and ashing devices and CVD devices for semiconductor and liquid crystal equipment that require a clean environment since it is hardly deteriorated by plasma and uses a minimum amount of metal fillers. Temperature limit: 200°C
	5640	Silicone Rubber O-ring	O-shaped cross section ring molded of silicone rubber. Available are additive-free crystal and white-colored ring.
Vessel, tube, and piping materials, using chemical liquid or special gas for cleaning process, etching device, oxidation, photolithography, diffusion, and ion implantation	(7BR163) (7BR164) (7BR166) (7BR563) (7BR564) (7BR573)	VALFLON Molded Vessel	Square vessel and overflow vessel integrally molded of PTFE or PFA
	(7FZ1)	VALFLON Spray ball	With a sphere, made of PTFE, precisely drilled to form nozzle holes for washing the inside of tank
	(7FH1) (7FH3)	VALFLON Heat Exchanger	Heat exchanger composed of PTFE tube bundle and honeycombs at both ends
	(7FR12)	VALFLON Sheet lined Vessel	Stainless steel or carbon steel vessel, internally lined with VALFLON sheet (including PFA) by welding or depositing
	7042	VALFLON Lined Pipe	Steel pipe (STPG, SGP or SUS) with PTFE or PFA tube inserted and lined. Available are straight pipe, elbow, reducing tee, tee cross, reducer, concentric reducer, and eccentric reducer.
	7041	VALFLON Flexible hose (with Wire Braid)	PTFE hose, braided with stainless wire and provided with metal connectors at both ends
	7046-1 -2	VALFLON Pliable hose	PTFE hose, corrugated into spiral shape
	7803	VALFLON Expansion Joint	Bellows formed from PTFE hos

Industry for Nuclear Power

Applications/ Equipments		Valqua No.	Name	Characteristic
Pipe flange and gasket for connecting equipment	Auxiliary cooling system, turbine condensate system, and safety injection water system	6500-AE	Compressed Non-Asbestos sheet	As compressed sheet for nuclear power use, soluble chlorine (including fluorocarbon) has been reduced to 100 ppm or lower. Suppressed corrosion of stainless steel flange is expected.
	(BWR) Nuclear cooling re-circulate system, main steam system, main water supply system, reactor core spray system, aux. equipment cooling system, residual heat removal system, sampling spent fuel pooling system (PWR) Primary cooling system, reproducing or non-reproducing residual heat removal system, aux. equipment cooling system, seal water system, sampling system, spent fuel pooling system. (ATR) Same as BWR and PWR	6590AE 6592AE 6596AE 8590AE 8591AE 8592AE 8596AE		Valquatight and Blacktight are available in standard type, with inner ring, and with outer ring, and with inner and outer ring. Products can be used at connections of equipment and piping as well as valve bonnet.
	Ion exchange resin re-reproducing sulfate line for cooling material cleaning system of BWR, PWR, ATR; chemical injection line for radioactive waste disposition of BWR	N7030 N7031 N7035	VALFLON enveloped gasket	Elastic core material such as compressed sheet is enveloped with PTFE. Used as seal for heavily corrosive fluid.
	Hydraulic and pneumatic equipment, measuring instrument, power actuator	640 4640 5640	Synthetic Rubber O-ring Fluoro Rubber O-ring Silicone Rubber O-ring	O-shaped cross-section rings of various synthetic rubbers, molded into specified shape and size
Valve stem seal	(BWR) Nuclear cooling re-circulate system, main water supply, turbine condensate system, air extraction system, cooling material cleaning system, reactor core spray system, main and aux. steam system, containment cooling system, cooling system for reactor shutdown, emergency condensate system, chemicals injection system, nuclear reactor pressure vessel cover cooling system, control bar operation water pressure system, fuel pool cooling system, radioactive waste disposition system	VF-10AE VF-20LAE	VALQUAFOIL Ring Packing VF Braid Packing	As packing for nuclear power use, soluble chlorine (including fluorocarbon) has been reduced to 100 ppm or lower. Suppressed corrosion of valve stem is expected.

Industry for Nuclear Power

Applications/ Equipments		Valqua No.	Name	Characteristic
Valve stem seal	(PWR) Primary cooling system, chemical volume and volume control system, waste disposition system, safety injection water system (ATR) Primary cooling system, main steam system, water supply system, turbine condensate system, nuclear reactor aux. equipment cooling system, waste disposition system, primary cooling material cleaning system, isolation cooling system, residual heat removal system	VF-10AE VF-20LAE 6399LAE	VAQUAFOIL Ring Packing VF Braid Carbon Fabric Ring Packing	As gland packing for nuclear power use, soluble chlorine (including fluorocarbon) has been reduced to 100 ppm or lower. Suppressed corrosion of valve stem is expected. Can be used as seal for various valves.
	(PWR) Primary coolant system, chemical and volume control system (BWR) Off-gas system, rare gas holdup system (ATR) Heavy water system (FBR) Na coolant system	(3DW)	Dynamic Bellows	
Seal for containment vessel	(BWR) Drywell top flange, air-lock type machinery gate (PWR, ATR, FBR) air-lock type machinery gate for container	5060	Silicone Rubber Packing	Gasket of silicon rubber, molded into specified shape and dimensions. Used as seal for equipment entry/exit.
	Grip seal for regular air lock	(VS1)	Mechanical Seal	Used as seal for rotating parts. For detail see p38 and 39.
Pool gate for fuel storage Seal for rotary plug (FBR) Cask metal skirt for spent fuel transportation		5045	INFLATE SEAL	Hollow gasket made of cloth-reinforced rubber or of rubber itself. The hollow part is supplied with air etc. to inflate the gasket for higher sealing effect.
Fuel storage pit pool gate, rotary plug seal (BWR), cask metal skirt for spend fuel transportation		2630	Cloth and Synthetic Rubber V-packing	Cotton cloths lined with synthetic rubber, molded into V-shaped cross section. Used for reciprocating pumps.

Industry for Nuclear Power

Applications/ Equipments		Valqua No.	Name	Characteristic
Air conditioning system	(PWR) Containment vessel re-circulate equipment, annulus exhaust device, ventilation for aux. building and radiation control area, exhaust system for Containment vessel repair	(FLEX)	FLECTOR NE FLECTOR	Nylon rubber lined with synthetic rubber on both sides, glass fabric, carbon fabric cloth, etc. are processed into specified shape and dimensions. Used as expansion joint for equipment, piping, and duct.
	(BWR) Emergency gas disposition system, gas cooling system in drywell (ATR, FBR), ventilation system			
Seal on penetration in radioactive protection wall	(BWR, ATR) Nuclear reactor building, turbine building, radioactive waste treatment construction	(PRBT)	Penetration Rubber Boots	Nylon cloth, lined with chloroprene rubber, EPDM rubber or silicone rubber on both sides, is processed into specified z shape and dimensions. With fastener.
Piping materials	(BWR) Chemical injection line H2SO4 dilution tank for radioactive waste disposition system	(7FR52)	VALFLON Sheet Lined Vessel VALFLON Lined Pipe	Piping materials whose liquid contact areas are lined with PTFE, PFA, etc. Used for tank, fitting, valves, etc. handling corrosive fluid.
	(PWR) H2SO4 measuring tank and dilution tank for ion exchange resin regeneration of chemical volume control system	7042	VALFON Lined Pipe	
		PF2 (7FC62A)	VALFON (PFA) Lined Ball Valve	
	Expansion Joint for emergency gas discharge system of BWR	(3DJ)	DYNAMIC BELLOWS Clean Bellows V series M series	Welded metal bellows of various thin metal, pressed into an annulus of S-shaped cross section. Outer and inner diameters are fusion-welded to required threads per inch.

Industry for Air-Craft

Applications/ Equipments		Valqua No.	Name	Characteristic
Seals for aircraft (qualified by		640	Synthetic Rubber O-Ring	O-ring of oil-resisting synthetic rubber, compounded according to standards and molded into O-ring shaped cross section
		4640	Fluoro Rubber O-Ring	O-ring of fluororubber , compounded according to standards and molded into O-ring shaped cross section
		5640	Silicone Rubber O-Ring	O-ring of silicone rubber, compounded according to standards and molded into O-ring shaped cross section
		2060	Synthetic Rubber Packing	Product of oil-resisting synthetic rubber, compounded according to standards and molded into specified shape and dimensions
		2631	Synthetic Rubber V-Packing	Packing of oil-resisting synthetic rubber, compounded according to standards and molded into V-shaped cross section
O-ring backup (qualified by JSDA, passed in the first test)		7645	VALFLON Back-up ring	PTFE processed by machining into spiral-, one-cut-, or endless-shaped cross section.
High-temperature and high-pressure seal for aircraft (qualified by JSDA, passed in the first test)		3640	Metal Hollow O-ring	Hollow metal O-ring of specified material pipe, processed endlessly
Electric insulation tube and bar (qualified by JSDA, passed in the first test)		7040	VALFLON Spaghetti Tube	Thin-wall tube of injection-molded PTFE
		7160	VALFLON Molded Products	PTFE molded and processed into specified shape and dimensions
Parts of aircraft, missile, and rocket		7045	VALFLON Wire and Cable	RG coaxial cable qualified per MIL-C-17

Industry for Electric & Electronical Device

Applications/ Equipments		Valqua No.	Name	Characteristic
High-frequency electric transmission cable for portable phone and car phone		7047	VALFLON Semi-Rigid Coaxial Cable	Coaxial cable, low in loss and superior in standing wave ratio. Connector can be attached and bending is possible.
		7047C	VALFLON Semi-Rigid Coaxial Cable with Connector	
Battery terminal seal for artificial satellite		3645	TRYPACK	Seal for super-high vacuum range
Office automation equipment	Bearing	7500	VALFLON Bearing	Non-lubricant bearing, low in noise and low in starting torque
	Keyboard Cover	E9960	TOUGHRETHANE Keyboard Cover	Soft-touch panel switch
	Cover for copier roll	(7BG1391)	VALFLON PFA Thin Tube	Thin-wall tube for covering roll.
	Mouse ball for PC	(9BG261) 2060 5060	TOUGHRETHANE Ball Synthetic Rubber Ball Silicone Rubber Ball	Superior circularity secured by lapping
Seal packing for electrolytic condenser		27000	FR Sheet	Long-sized product of PTFE and Rubber. laminated
Roller and bearing for turn table of microwave oven		7160	VALFLON Skived Products	Available are molded PFA and PPS parts.
Sliding material for ATR, VTR cassettes and floppy disks		8900-20	VALLEN Friction Tape	Available are parts for heavy load, low load, and abrasion resistance.
Communication equipment	Wave guide spacer	7160	VALFLON Skived Product	Low dielectric loss in high-frequency range
	Terminal	7960	VALFLON Terminal	
	High-frequency electrical cable	7047 7047C	VALFLON Semi-Rigid Coaxial Cable	
	Insulation of connector and filter	7601 7600	VALFLON Rod	
Circuit-breaker	Air-extinguishing chamber nozzle seal products	7160 640 2060 4060	VALFLON Machined products Synthetic Rubber O-ring Synthetic Rubber Molded products Fluoro Rubber Molded products	Available are products filled with arc resistant material. Seal for SF6, vacuum, and air.
Large generator and electric motor	Insulation of coil and separator	7900 7990 7991	VALFLON Skived Tape VALFLON Cementable Tape	H-type insulation material, with adhesion on one side or both sides
	Cooling hose	7040	VALFLON Hose	Available is reinforced armor sheath.

Industry for Electric & Electronical Device

Applications/ Equipments	Valqua No.	Name	Characteristic
Separator for heat sealer	7910 7925	VALFLON Pressure Sensitive Adhesive Tape	Heat resistant tape with silicone adhesive applied
Insulation for flat cable	7940	VALFLON Unsistered Tape	Low dielectric loss in high-frequency area
Usage in transmission lines for UHF, up to microwave. Communication apparatus, portable phone base station, satellite communication devices	7045	VALFLON wire and cable VALFLON coaxial cable	RG co-axial cable, qualified by MIL-C-17
Waterproof snap switch cover	E9060	TOUGHRETHANE Molded products	Superior switching performance at low temperature

Industry for Food

Applications/ Equipments			Valqua No.	Name	Characteristic
For drinks (alcoholic drink, carbonated drink, lactic drink)	Filling machine	Rotary seal	7740	SLIPPER SEAL	High functional composite seal, applicable also to soft shaft
			7631	VALFLON V-packing	General-use seal material; also applicable multiple purposes
		Bottle cap packing	2060 4060 5060	Synthetic Rubber Fluoro Rubber Silicone Rubber	Available are series of CIP-resistant materials, complying with Food Hygiene Law.
		Flexible hose	7041	VALFLON Flexible Hose	PTFE hose, flexible in flavor change
	Bottle cleaning machine	Bottle holder	(8BG11G)	PP General Injection molded product	Injection molded PP product, excellent in shock resistance
	Labeler	Bottle stand pad	2060	Synthetic Rubber Packing	With abrasion resistance
		Sponge pad	(XM221)	TOUGHRETHANE Sponge	With high abrasion resistance and tensile strength
	Caser-uncaser	Grip rubber	E9320	TOUGHRETHANE Casing Grip	With high abrasion-resistance and mechanical strength
	Filter	Gasket	5640	Silicone Rubber O-ring	O-ring with high CIP resistance
		Housing	(7BG11)	VALFLON PFA molded Product	In addition to PFA products available are various fluorocarbon and engineering plastics products.
	Piping seal products	Sanitary gaskets	2060 5060	Ferrule Gasket	CIP resistant, complying with Food Hygiene Law
		Gasket for places where asbestos should not be used	N7030 7020 7590	Non Asbestos VALFLON Enveloped Gasket VALQUALON Sheet WHITETIGHT	Available are various non-asbestos gaskets. Refer to information on seal materials.

Industry for Food

Applications/ Equipments		Valqua No.	Name	Characteristic
Steam line	Expansion joint	(UNIPLE)	UNIPLE Expansion Joint	Expansion joint using Dynamic Bellows
Rubber ball for powder sieving machine		5060	Silicone Rubber Ball	Available are also synthetic rubber balls, urethane balls.
Seal for screw conveyor for powder		(VS1)	Diaphragm Seal	Seal method preventing center runout, shaft runout, and vibration
Roll for bread baking, lined hopper		7160 7042	VALFLON Skived Product VALFLON Lined Product	In addition, available are products of glass-filled carbon fiber, products with white conductive filler, etc.
Lined piping for chemical seasoning mixing line		7042	VALFLON Pipe Material	Various lined products are available. See pages on piping materials.
Coating of ready-to-eat noodle machine		(7004)	VALFLON Coating	Thin coating, non-adhesive (easy to release)
Coating of business-use rice cooker		(7004)	VALFLON Coating	Durable and washable
Lining of butter and cheese melting and mixing machine		7042	VALFLON Lined Product	Thick film coating for resistance to adhesion (releasability)
		(7FR12) (7FR52)	VALFLON Lined Sheet	
Pestle and mortar for rice cake making machines		7160	VALFLON Cut products	
Lining of ham and sausage machine		7042	VALFLON Lined Product	

Industry for Auto

Applications/ Equipments	Valqua No.	Name	Characteristic
Gasket for oil pan, oil cooler, front cover, etc.	(VND6)	Compressed Non-Asbestos Sheet	Oil swelling basic type (VND-627) Oil swelling low-stress relaxation type (VND-657) Oil high swelling, high-strength type (VND-674)
Gasket for gear box, compressor, fuel system, etc.	(VND6)	Compressed Non-Asbestos Sheet	Oil-resistant high-strength (VND-629E) Oil-resistant low-stress relaxation (VND-639)
Gasket for cooling system fluid such as LLC	(VND6)	Compressed Non-Asbestos Sheet	Water swelling type (VND-667)
Gasket for Valve Body of AT mission.	681	Oil Sheet	Seat consisting of vegetable fiber and oil-resisting rubber
Gaskets for high temperature applications such as ultra high pressure fuel injection systems (pressure of 200 MPa) and exhaust gas outlets.	3641	PICCORING	This gasket is used after a specified squeeze dimension is set as for synthetic rubber O-rings. Its construction, as a self-sealing, metal hollow O-ring, provides high sealing performance with a low tightening torque. This product can be supplied in large quantity at a low cost.
Gasket for fixing and moving machinery	640	Synthetic Rubber O-ring	Vitriolic rubber, acrylic rubber, fluororubber and other materials are available.
	640	Synthetic Rubber O-ring(colored)	Facilitating identification of O-ring material, which prevents miss-installation. Available are blue, white and brown gaskets.
Gasket for fixing and moving machinery (automated continuous line)	(NRF640)	New RUBBERFLON O-ring	Low coefficient of friction and non-adhesion eliminates needs for supplying oil or grease. No adhesion between products and between machines.
Terminal contact seal for wire harness (cable assembly)	2060 5060	Rubber products for Wire Harness	Rubber surface is bred with oil, which offers non-adhesion and low friction.
Boots for power steering and suspension.	E9060	TOUGHRETHANE Boots	Lighter in weight than rubber-made and easier to install than resin-made boots
Various molded products that require more toughness than rubber's and more elasticity than resin's	E9060	TOUGHRETHANE Injection products	Available are products with fillers of lower friction, for user's selection in accordance with specific usage.

Industry for Auto

Applications/ Equipments	Valqua No.	Name	Characteristic
Airbag for automobile	E9960	TOUGHRETHANE Film Sheet	Highest tearing strength as thermo-plastic elastomer, and superior flexibility, abrasion-resistance, weather-resistance, and oil-resistance. Transparent as well as colored (2-3 colors) products can be supplied.
Terminal protection of bundled cables	E9040	TOUGHRETHANE Tube, Hose	
Compressor piston ring, seal ring for power steering and transmission, back-up ring for brake packing, bellows of EACV (ISCV)	7510 7740 7645 7800	VALFLON Piston Ring VALFLON SLIPPER Seal VALFLON Back-Up Ring VALFLON Machined Bellows	High-temperature and heavy-load fillers, such as carbon fiber, bronze, and PPS resins, are available.
Various bushes, pull-cable inside tubes, mechanical and thermal protection of harness	7040	VALFLON Tube	Low-friction property of PTFE is exhibited by accelerator cable inner tube and low-rotational noise property by cut tube.
Navigation system etc.	7045	VALFLON Wire and Cable	RG co-axial cable qualified by MIL-C-17
Semi-microwave and microwave lines, mobile communication, intelligent transport system (ITS)	7047 7047C	VALFLON Semi-Rigid Coaxial Cable	Low-loss cable for microwave and semi-microwave transmission. Available are cables with connector at both ends.
Clutch facing	(6SC22)	Clutch Facing	All the four standard types are non-asbestos (NK50, VS80F, and NK43G). Supplied for cars, buses and trucks worldwide.
Acoustic and vibration insulation for clutch disk	792	Friction Washer	Eight types, from low-frictional to high-frictional, are available for specific applications.
Check balls and element parts for transmission and gas exhaust devices, and moving parts such as bushes, thrust washers, and dust seals	(ENPLA)	ENPLA products (Engineering Plastic)	General purpose engineering plastics: placental, polyamide, polyethylene Special engineering plastics: polyimide, polyamideimide, polyetheretherketone
Air bag (rotary, soundproof and for slide sheet for rotary connector)	2910	Vibro-isolating sheet Slide sheet	Elastomer or foam sheet, effective in acoustic insulation, is subjected to slide processing. Slide processing includes pasting of PTFE sheets and PTFE coating.

*The mark * means Asbestos Products.
*The number in parentheses () is for our distinction.

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112SN	VALQUATEX S(ribbon treated to resist smoke)	72
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2060	Sanitary Gasket	22
2060	Synthetic Rubber Packing	28, 32, 81, 82, 84
2060	Synthetic Rubber Ball	82
2060	FR Ferrule Gasket	84
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