







GRAPHITE PACKINGS

	ALS300	
	Service : For use in pumps and valve for all fluid, chemical, and gas	
	Pressure	4600psi(317bar)
	Chemical Resistance	pH 0~14
	ALS355	
	Service : Service : For use pumps and valves, high temperature and pressure stem valves, soot blower, control valves	
	Pressure	4600psi (317bar)
	Chemical Resistance	pH 0~14
	ALS357	
	Service : For use pumps and valves, high temperature and pressure stem valves, valve bonnet	
	Pressure	4600psi (317bar)
	Chemical Resistance	pH 0~14
	ALS350	
	Service : For use pumps and valves, high temperature and pressure stem valves, valve bonnet	
	Pressure	4200psi(290bar)
	Chemical Resistance	pH 0~14
	ALS350M	
	Service : For use in high pressure, high temperature steam valve bonnet	
	Pressure	5000psi(345bar)
	Chemical Resistance	pH 0~14
	ALS359	
	Service : For use in high pressure, high temperature steam valve bonnet	
	Pressure	4200psi (290bar)
	Chemical Resistance	pH 0~14
	ALS359M	
	Service : For use in high pressure, high temperature steam / valve bonnet	
	Pressure	5000psi (345bar)
	Chemical Resistance	pH 0~14
	Temperature	
	From ~400°F(-240°C) to 800°F(430°C) in air	
	From ~400°F(-240°C) to 5400°F(3000°C) in non oxidizing	
	From ~400°F(-240°C) to 800°F(650°C) in steamt	


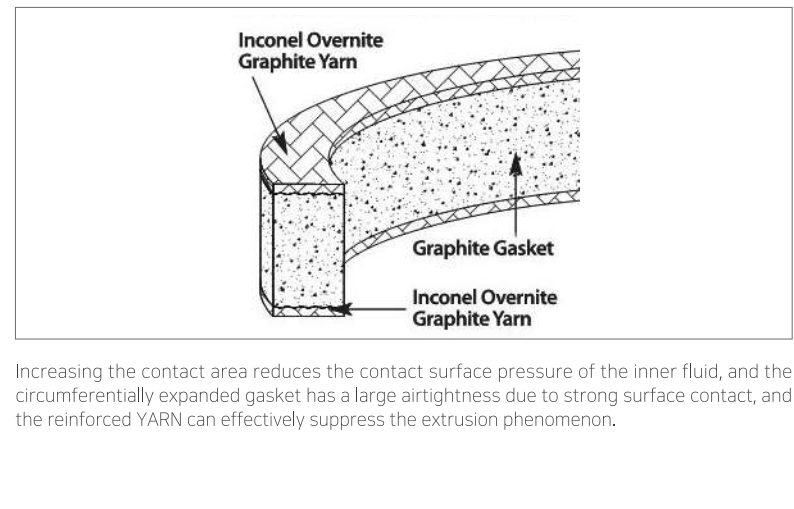
Graphite Yarn Reinforced BONNET GASKET

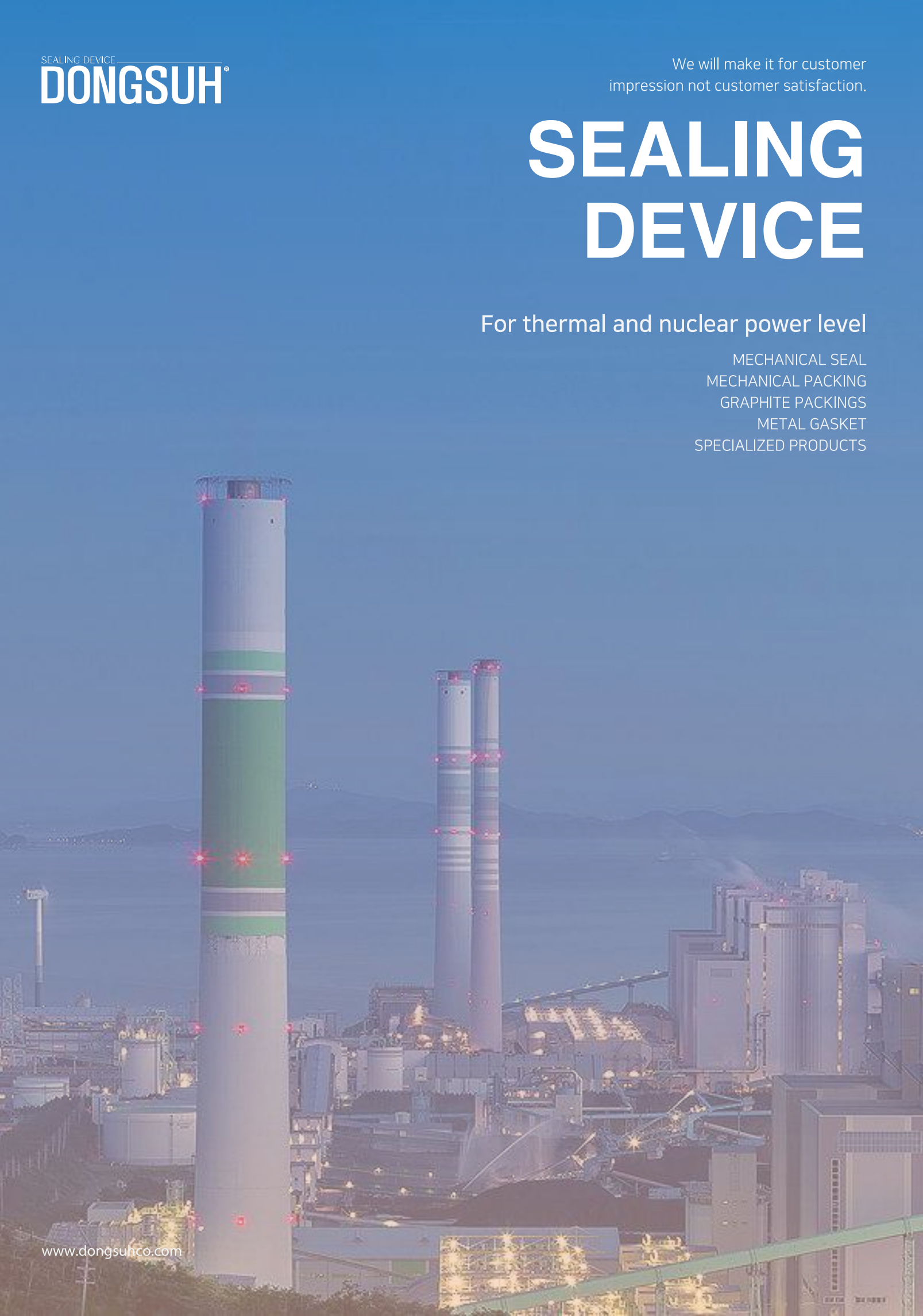
	
PRODUCT FEATURES	
Highly purity Graphite Tape of 99.8% or more is wound and the graphite yarn which has excellent lubricity at the upper part and lower part is compression-molded together with braided reinforcement to provide excellent durability. Power generation facility It is installed in Bonnet of high pressure valve and it is designed to cope with excellent sealing and temperature change. It can effectively suppress extrusion and crushing by combining graphite yarn (with Inconel wire overnite) braided on upper and lower part.	
Pressure	5000psi(350bar)
Chemical Resistance	pH 0~14
Working Temperature	From ~240°C to 430°C in air From ~240°C to 3000°C in non oxidizing From ~240°C to 650°C in Steam

ALS 359Y

	
	
It is a bonnet gasket which is shaped like a valve bonnet. It is tightened by bolts and the bottom part is tightly tightened by strong compressive force. The reinforced yarn prevents CRUSH phenomenon against impact pressure.	

ALS 350Y

	
	
Increasing the contact area reduces the contact surface pressure of the inner fluid, and the circumferentially expanded gasket has a large airtightness due to strong surface contact, and the reinforced YARN can effectively suppress the extrusion phenomenon.	



SEALING DEVICE
DONGSUH®

We will make it for customer
impression not customer satisfaction.

SEALING DEVICE

For thermal and nuclear power level

- MECHANICAL SEAL
- MECHANICAL PACKING
- GRAPHITE PACKINGS
- METAL GASKET
- SPECIALIZED PRODUCTS

SEALING DEVICE
DONGSUH®
www.dongsuhco.com/eng/

Head Office 1157, Gijang-daero, Igwang-myeon, Gijang-gun, Busan, Republic of Korea
Ballyong Factory 26, Ballyongsandan 3-ro, Jangan-eup, Gijang-gun, Busan, Republic of Korea
Seoul Office 39, Sihwa venture-ro, Siheung-si, Gyeonggi-do, Republic of Korea
Tel 82-70-7510-2039
Fax 82-51-980-6604

www.dongsuhco.com

MECHANICAL SEAL

ALS 122NB MONO Spring Type Unbalance Seal	Standard Materials Metal Parts : 316 Stainless Steel. / Springs : Alloy 20. / O-Ring : Fluorocarbon installed. Ethylene propylene(EP) or Kalrez1 available upon request. Rotating Face : Carbon, Solid Tungsten Carbide or Silicon. Carbide available upon request. Stationary Face : Alumina Ceramic, Solid Tungsten Carbide or Silicon Carbide. -Other Materials on Special Order. Applications - All types of rotary equipment, pumps,marine, mixers, agitators and compressors in a variety of service applications. - Suitable for most general and light chemical duties ranging from water to weak acid solutions, wherever elastomer secondary seals can be used. - SEA WTR Supply Pump for Nuclear & Thermal Power Plant. Operating Conditions - Temperature : -40℃to + 200℃ / -40°F to + 390°F Depending on materials used - Pressure : Up to 10kg/Cm ² - Speed : Up to 10m/sec
ALS 151NB Multi Spring Type Unbalance Seal	Standard Materials Metal Parts : 316 Stainless Steel or Hastelloy C. / Springs : Alloy 20 or Hastelloy C. / O-Ring : Fluorocarbon installed. Ethylene Propylene(EP) or Kalrez available upon request. / Rotating Face : Carbon, Solid Tungsten Carbide or Silicon. Carbide available upon request. Stationary Face : Alumina Ceramic, Solid Tungsten Carbide or Silicon Carbide. -Other Materials on Special Order. Applications - All types of rotary equipment, pumps,marine, mixers, agitators and compressors in a variety of service applications. - General Purpose Pumps. - SWBP, CCWP, Caustic Pump, Acid Pump, CVP for Nuclear & Thermal Power Plant. Operating Conditions - Temperature : -40℃to + 200℃ / -40°F to + 390°F Depending on materials used - Pressure : Up to 20kg/Cm ² - Speed : Up to 20m/sec
ALS 152AB Multi Spring Type Balance Seal	Standard Materials Metal Parts : 316 Stainless Steel or Hastelloy C. / Springs :Alloy 20 or Hastelloy C. / O-Ring : Fluorocarbon installed. Ethylene Propylene(EP) or Kalrez available upon request. / Rotating Face : Carbon, Solid Tungsten Carbide or Silicon, Carbide available upon request. Stationary Face : Alumina Ceramic, Solid Tungsten Carbide or Silicon Carbide. - Other Materials on Special Order. Applications - All types of rotary equipment, pumps,marine, mixers, agitators and compressors in a variety of service applications. - General Purpose High Pressure Pumps. - Acid Pump, Sodium Hypo Feed Pump, CBP, COP, CCWP LDP for Nuclear & Thermal Power Plant. Operating Conditions - Temperature : -40℃to + 200℃ / -40°F to + 390°F Depending on materials used - Pressure : Up to 20kg/Cm ² - Speed : Up to 20m/sec
ALS 191NB Metal Bellows Shaft Seal	Standard Materials Metal Parts : 316 Stainless Steel / Springs : Alloy 20 or Hastelloy C. / O-Ring : Fluorocarbon installed. Ethylene Propylene(EP) or Kalrez available upon request. / Rotating Face : Silicon Carbide, Carbon / Stationary Face : Alumina Ceramic, Solid Tungsten Carbide or Silicon Carbide. - Other Materials on Special Order. Applications - All types of rotary equipment, pumps,marine, mixers, agitators and compressors in a variety of service applications. - Slurry Pumps. - COP for Nuclear & Thermal Power Plant. Operating Conditions - Temperature : -40℃to + 260℃ / -40°F to + 500°F Depending on materials used - Pressure : Up to 20kg/Cm ² - Speed : Up to 25m/sec
ALS 201NB General Purpose Shaft Seal	Standard Materials Metal Parts : 316 Stainless Steel. / Springs : Alloy 20. / Elastomer Bellows : Fluorocarbon installed. Ethylene propylene(EP) or Kalrez available upon request. /Rotating Face : Carbon, Solid Tungsten Carbide or Silicon carbide available upon request. / Stationary Face : Alumina Ceramic, Solid Tungsten Carbide or Silicon Carbide. - Other Materials on Special Order. Applications - All types of rotary equipment, pumps,marine, mixers, agitators and compressors in a variety of service applications. - MSOP, RSOP, ESOP, SOVP, MOP, HFP, Lub Oil Pump for Nuclear & Thermal Power Plant. Operating Conditions - Temperature : -40℃to + 120℃ / -40°F to + 390°F Depending on materials used - Pressure : Up to 10kg/Cm ² -Speed : Up to 10m/sec -Self Aligning
ALS 312AB Cartridge Mounted Single Seal	Standard Materials Metal Parts : 316 Stainless Steel. / Springs : Alloy 20. / O-Ring : Fluorocarbon installed. Ethylene Propylene(EP) or Kalrez available upon request. Rotating Face : Carbon, Solid Tungsten Carbide or Silicon Carbide available upon request. / Stationary Face : Alumina Ceramic, Solid Tungsten Carbide or Silicon Carbide. - Other Materials on Special Order. Applications - All types of rotary equipment, pumps,marine, mixers, agitators and compressors in a variety of service applications. - ACWP, CCWP for Nuclear & Thermal Power Plant. Operating Conditions - Temperature : -40℃to + 260℃ / -40°F to + 500°F Depending on materials used - Pressure : Up to 20kg/Cm ² - Speed : Up to 20m/sec

MECHANICAL PACKING

ALS 910C	ALS 900G	ALS 970	ALS 955W
			
Applications - All types of pumps and valves handling the most liquids	Applications - Valve -SOOT BLOWER - Pump (Power plant, boiler water supply and condensate pump, etc.) - All other places requiring efficient sealing in the factory	Applications - High temp. and high pressure valve for thermal power plant - High temp. and high pressure valve for nuclear power plant - Pumps and mixers and others - Power plant, boiler, water supply and condensate pump, etc. - Different types of valves (water supply, condensate pump, turbine, water circulation pump, etc.)	Applications - Different valves for high temp and high pressure - High temp and high pressure valves for thermal power plant - High temp and high pressure valves for nuclear power plant
Technology - Temp limit : 1050°F 450℃Steam - Chemical-resistant : pH 0-14 - Pressure limit : 3600PSI / 250Bar Valve /500PSI / 34Bar Pump - Speed : 3000FPM (15m/s)	Technology - Temp limit : 840°F 450℃Air / 1200°F 650℃ Steam - Chemical-resistant : pH 0-14 (except oxidant) - Pressure limit : 4300PSI / 300Bar /440PSI /30Bar Pump - Speed : 4000FPM / 20m/s	Technology - Temp limit : 1050°F 450℃ Steam - Chemical-resistant : pH 0-14 (except oxidant) - Pressure limit : 3600PSI / 250Bar Valve / 500PSI / 34Bar Pump - Speed : 3000FPM (15m/s)	Technology - Temp limit : 840°F 450℃ Air / 1200°F 650℃ Steam - Chemical-resistant : pH 0-14 (except oxidant) - Pressure limit : 8000 PSI / 550Bar
ALS 420	ALS 610	ALS 623S	ALS 630N
			
Applications - Valves requiring acid resistance - Valves requiring vapour or steam and strong chemical property. - Control valve for below 260℃	Applications - Agitator - Rotation and reciprocating pump shaft	Applications - High speed pump - Centrifugal pump - Agitator and Mixer	Applications - Slurry pump - Sea water pump - Agitator and mixer
Technology - Temp limit : 500°F 260℃ - Chemical-resistant : pH 0-14 - Pressure limit : 3000PSI / 210Bar	Technology - Temp limit : 500°F (260℃) - Chemical-resistant : pH 4-10 - Lineal speed of the shaft : 2000FPM (10m/s)	Technology - Temp limit : 500°F (290℃) - Chemical-resistant : pH 1-13 - Lineal speed of the shaft : 3600FPM (18m/s)	Technology - Temp limit : 550°F (290℃) - Chemical-resistant : pH 2-12 - Lineal speed of the shaft : 2000FPM (10m/s)

SPECIALIZED PRODUCTS

ALS 1700, 1710 SPRING ENERGIZED SEAL	ALS 1200 PTFE V-PACKING
	
FEATURES - For both static and dynamic seal - For most chemical products and organic solvent. - It can be used from extremely low temperature at -267℃to high temperature up to 340℃ - Ranging from high vacuum to high pressure. - Wide ranges of seal materials for different fluids are available. - It is produced according to JIS B2406 standard and AS568 and DIN spec.	TECHNICAL DATA - Tensile Strength: 28~35MPa - Elongation: 200~400% - Temperature: up to 500°F(260℃) - Hardness: R25 (Rockwell) SERVICES - For use in control valves, Rod and piston air, oil and water services.

METAL GASKET

SPIRAL WOUND GASKETS

STRUCTURE

The spiral wound gasket is the most ideal type having flexibility and recovery which are essential for high temperature and high pressure among semi-metal gaskets. It is wound in spiral combined with V-type metal thin hoop and non-ferrous material filler. The winding start part and end part are wound by the hoop over several times and then both edge is processed by spot welding to make the gasket. The gasket has outstanding capability as it features unique structure with elastic metal and flexible filler.

FEATURE

- Outstanding capability for high temperature and high pressure
- Automatic flexibility and recovery from the change of temperature, pressure, vibration and working conditions
- Efficient production for any type of dimensions such as round or oval type, etc.
- Outstanding sealing capability as it is produced according to the pressure of unbalanced flange.

METAL DOUBLE JACKETED GASKET

DONGSUH metal jacketed gaskets are fabricated with Non-Metallic for inner filler as metallic of outer shell. They are widely used in heat exchangers, Boilers, pumps, valves with high pressure, high temperature and severe corrosion conditions for various plants. (Powers, Chemicals, Oil Refineries, Iron Plants) Metal jacketed gaskets are fabricated by hand-made to various shapes and sizes as Round, Oval, oblong in order to supply. Besides, many materials are able to use according to temperature, pressure and corrosive conditions. Recently for sealing improvement Graphite and PTFE tape are glued together on both sides of gasket in view of increasing consumption. Effective is especially high in case of damage caused by corrosion on flange surface.

STANDARD TYPE

Type	Double Jacketed Gasket (DJ)	Double Jacketed Gasket & Double Shell Gasket (이중벽 DJ)	Double Jacketed Corrugated Gasket (파형 DJ)
Cross Section			

METAL RING JOINT

Ring joint gasket is a type of pressure energized gasket used on pipe flanges, pressure vessels, Valve bonnets handling high pressure steam, gas, hot oil, solvent vapor at high temperature. DONGSUH's experienced technology offers many different types so that customers may select the most suitable one in accordance with operating conditions.

Cross Section	Name	Description
	ALS2000-O	This type is the original joint design. Contacts flange face at the curved surface and provides a high reliability seal. But due to its shape, it is harder to achieve accuracy of dimensions and surface finish in oval type than in octagonal one and also more expensive to make, reuse is not possible. Complies with ANSI B16.20, API 6A, JIS F 7102 510SR, JF-75-23-63.
	ALS2000-C	More economical to make and more accurate in dimensions and surface finish than oval type because it consists of straight surfaces only. But more torque load is required to flow the gasket material into imperfections on the flange facings, reuse is possible, complies with the same standards as above.
	ALS2000-L	Designed to DIN 2696 Bolt load will be comparatively small, because its contact surface with flange face is spherical.
	ALS2000-D	Auto seal type gasket. For effective sealability, silver is plated on surface. Used for pressure vessel.

PRESSURE SEAL RING GASKET

There are self sealing gaskets employed in high pressure and high temperature valve covers. The gasket receives its initial sealing stress by tightening the bolt, and is then expanded radially by the end force of the fluid to produce the required sealing pressure.

GASKET FACTOR(M) & SEATING STRESS(Y) OF COVERING LAYER GASKET

Type	Shape	Type	Shape	Type	Shape
I		II		III	
IV		V		VI	

SERRATED(GROOVED) METAL GASKET

Grooved (serrated) metal gasket is also made of cold rolled metal plate, but it has concentric grooves and effective sealing is minimized so as to increase sealing effect. Both of these gaskets are extensively used on pipe flanges, valve bonnets, pressure vessel, Heat exchanger at high pressure and temperature.

GASKET FACTOR(M) & SEATING STRESS(Y) OF COVERING LAYER GASKET

Style No	Sketch	Gasket Factor(M)	Seating Stress(Y)
ALS 2000G-7130		2.5	2,500 Psi
ALS 2000G-7230		2.5	2,500 Psi
ALS 2000G-7330		4.0	9,000 Psi
ALS 2000G-7430		4.0	9,000 Psi
		4.5	10,000 Psi