

STORY OF FOOSUNG PRECISION IND. CO., LTD. FLUOROPOLYMER DIVISION

VISION · HYSTORY · FACTORIES · PRODUCTS



FOOSUNG



후성정공(주) 불소수지사업부
FOOSUNG PRECISION IND. CO., LTD. FLUOROPOLYMER DIVISION

VISION OF FOOSUNG PRECISION

보다 좋은 품질의 제품을 만들어 길고 안정적으로 사용할 수 있기에,
교체되는 설비를 줄여 환경보호에 이바지합니다.

By producing better quality products
that can be used for a longer period of time and more reliably, we contribute to
environmental protection by reducing the need for replacement equipment.

국내 불소수지 라이닝 산업의 선두주자로 미래의 산업 일꾼을 육성합니다.

As a leader in the domestic fluororesin lining industry, we foster future industrial workers.

믿음과 신뢰를 바탕으로 세계적인 기업이 되겠습니다.

We will become a global company based on faith and trust.

새로운 미래창조를 위해 끊임없이 전진하는 기업 후성정공입니다.

Foosung Precision Industry continuously makes progress for the creation.

기업은 곧 인간

인간중심적이고 환경 친화적인 기업, 인류행복을 추구하는 기업, 후성의 기본정신입니다.

Companies are Humans.

A human-centered and environment friendly company, that pursues happiness
for mankind ; these are the basic mindset of Foosung.

내적, 외적인 충실함으로 언제나 굳건하고 능동적 핵심역량을 갖춘 인재육성과
인재실현을 통해 미래지향적이고, 창조적인 영속발전을 알차게 성취해 나감으로써 사회와
국가, 인류에 큰 업을 이루려는 희망경영, 알찬경영, 인본경영이 후성의 경영이념입니다.

The management philosophy of Foosung starts from the management of hope,
profitability and humanitarianism for the cultivation and realization of human
resource equipped with strong and dynamic competence based on internal and
external loyalty. By accomplishing creative and persistent development with
such human resource, it intends to realize great contribution for the society,
nation and mankind.



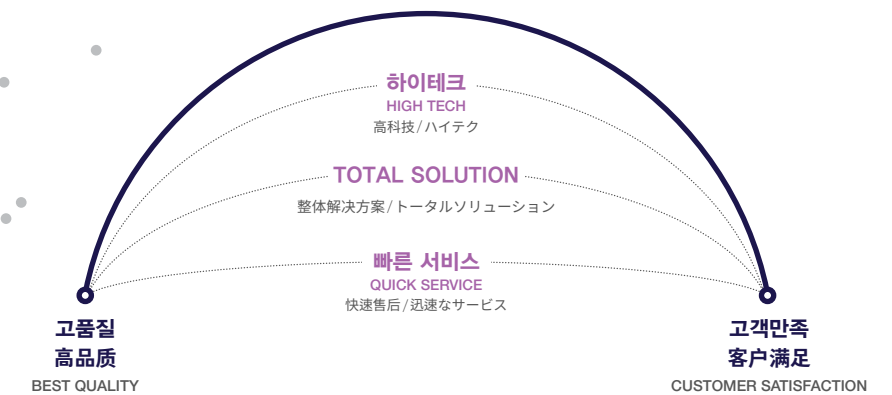
PROGRESS OF FOOSUNG PRECISION INDUSTRY

신뢰와 기술을 바탕으로 세계화 시대를 이끄는 인간 중심의 기업 후성정공은 불소수지사업부 및 공조사업부, 알루미늄사업부, 중국법인에서 힘찬 전진을 계속하고 있습니다. 불소수지가 갖는 고유의 특성을 이용한 안전한 라이닝 기술을 적용하고 있으며, 알루미늄소재가공과 자동차 부품(공조) 가공생산을 통하여, 고객의 요구에 만족하는 제품들을 제조 공급 하고 있습니다.

Foosung Precision Industry , a human-centered company leading the globalization era based on trust and technology, continues to move forward vigorously in the Fluoro-Polymer lining business, Air conditioning(Automobile) business, Aluminum business, and Chinese corporations. We are applying safe lining technology that utilizes the unique characteristics of fluoro-polymer, and manufacturing and supplying products that satisfy customers through aluminum material processing and automobile parts production.

厚成精工是一家以人为本、以信赖和技术为基石、引领全球化时代的企业，在氟树脂事业部、空调事业部、铝事业部以及中国法人等各领域持续蓬勃发展。我们应用了发挥氟树脂独特特性的安全衬里技术，通过铝材加工和汽车零部件(空调)加工生产，制造并供应满足客户需求的产品。

信頼と技術をもとにグローバル化時代をリードする人間中心の企業 Foosung Precision Industryは、フッ素樹脂事業部及び空調事業部、アルミ事業部、中国法人で力強い前進を続けています。当社はフッ素樹脂が持つ固有の特性を利用した安全なライニング技術を適用しており、アルミニウム素材加工と自動車部品(空調)加工生産を通じて、お客様のニーズに満足する製品を製造供給しています。



DIVISIONS OF FOOSUNG PRECISION IND.CO., LTD

불소수지사업부(FLUORO-POLYMER DIVISION) 含氟聚合物事业部 / フッ素樹脂事業部



본 사업부는 불소수지로 라이닝한 탱크와 배관 및 피팅류, 밸브와 자동차의 실링에 사용되는 불소수지 링(RING)등을 자체 생산하고 있습니다. 이러한 후성정공의 불소수지 제품들은 반도체 산업과 화학산업, 석유산업, 약물 및 식품 제조산업, 제지산업, 금속처리산업 등의 가혹한 조건에서 안정된 성능과 오랜 수명을 유지합니다.

Fluoropolymer Business Division makes Fluoropolymer lined products, fluoropolymer lined Tank Pipe & Fitting, Valve, and we also make a seal ring for using on automobile. Our fluoropolymer products ensure stable performance and long life in severe conditions such as semiconductor, petrochemical engineering, food processing, pharmacy, paper-making and metal treatment.

本事業部生産用含氟聚合物内衬の油箱,配件,管道,阀门等. 这些含氟聚合物产品在半导体产业, 石油化工, 食品和药品产业, 造纸产业, 金属处理产业等保持稳定的性能和寿命.

本事業部はフッ素樹脂でライニングしたタンクや配管及び継手類、バルブや自動車のシーリングに使用されるフッ素樹脂リング (RING)などを自社生産しています。これらの後成正孔のフッ素樹脂製品は半導体産業と化学産業、石油産業、薬品及び食品製造産業、製紙産業、金属処理産業などの過酷な条件で安定した性能と長寿命を維持します。

공조사업부 AL 부문(ALUMINIUM DIVISION) 空调事业部(AL部分) / 空調事業部(AL部門)



자체 특허 기술 및 선진 기술을 기반으로 하여 국내·외 자동차 산업에 요구되는 우수한 품질의 기능성 알루미늄 합금소재 및 부품 공급을 목표로 2000년 7월 출범한 이래 수입에 의존하였던 내마모성과 강도가 우수한 고규소 알루미늄 합금인 A390 및 Piston용 합금을 국산화하였습니다.

Based on self-patented technology and advanced techniques, it has promoted the supply of topnotch quality functional aluminum alloy and parts, which are demanded in the automobile industry across the world. Since its inception in July 2000, the Aluminum Division successfully localized A390 that prides excellent strength and anti-abrasion property as well as alloy for piston, which has been relied onto import.

基于自主专利技术和先进技术, 促进了一流的品质功能的铝合金和零部件. 自2000年7月成立以来, 达成依靠进口的耐磨耗性和强度优秀的A390和Piston合金国产化

独自の特許技術および先進技術を基盤として、国内・外の自動車産業に求められる優れた品質の機能性アルミニウム合金 素材および部品供給を目指し、2000年7月に発足して以来、輸入に依存していた耐摩耗性と強度に優れた高シリコンアルミニウム合金であるA390およびPiston用合金を国産化しました。

공조사업부 HP 부문(AIR CONDITIONING DIVISION) 空调事业部(H/P部分) / 空調事業部(HP部門)



차량용 에어컨 시스템의 주요 유닛을 연결시켜 주는 배관용 SUCTION HOSE/PIPE, DISCHARGE SUCTION HOSE/PIPE, LIQUID&SUCTION HOSE/ PIPE 에어컨디셔너의 냉매흐름배관 PIPE ASS'Y류를 생산하여 납품하고 있습니다.

We manufacture and supply PIPE ASS'Y, SUCTION HOSE/PIPE, DISCHARGE, SUCTION HOSE/PIPE, LIQUID&SUCTION HOSE/PIPE, and refrigerant flow piping for air conditioners that connect the main units of the vehicle air conditioning system.

制造和供应给连接空调系统的排出SUCTION HOSE/PIPE,DISCHARGE SUCTION HOSE/PIPE,LIQUID&SUCTION HOSE/PIPE AIR CONDITIONER PIPE ASS'Y.

車両用エアコンシステムの主要ユニットを連結させてくれる配管用 SUCTION HOSE/PIPE. DISCHARGE. SUCTION HOSE/ PIPE. LIQUID&SUCTION HOSE/PIPE エアコンディショナーの冷媒流配管PIPE ASS'Y類を生産して納品しています。

해외사업부(OVERSEA FACTORIES) 国外事业部 / 国外事業部



FOOSUNG CHUNHUAN FLUORO TECHNOLOGY(JIANGSU) CO.,LTD

FOOSUNG PRECISION INDUSTRY (BEIJING)

FOOSUNG PRECISION INDUSTRY (SUZHOU)

FOOSUNG PRECISION INDUSTRY (NINGBO)

FOOSUNG PRECISION INDUSTRY (SLOVAKIA)

HYSTORY OF FLUOROPOLYMER DIVISION

1971. 08.
한발산업사 설립
Established HANBAL INDUSTRY
HANBAL 事业部 成立
ハンバル産業社設立

1977. 02.
한발테프론공업㈜ 설립
Established HANBAL TEFLON INDUSTRY Co., Ltd.
HANBAL 特氟龙工业(株) 成立
ハンバルテフロン工業(株)設立

1987. 02.
PFA LINED PLUG VALVE 및 PTFE FITTING의 ISOSTATIC 성형방법 특허
PTFE Lining Plug Valve & Fitting of Isostatic Figuration Patent
PFA LINED PLUG VALVE 和 PTFE FITTING의 ISOSTATIC 模压工艺 专利许可
PFA LINED PLUG VALVE 及び PTFE FITTING의ISOSTATIC의成形方法特許

1988. 12.
한발테프론공업㈜ 문막공장 준공
Constructed Munmak Factory of HANBAL TEFLON INDUSTRY Co., Ltd.
HANBAL 特氟龙工业(株) 文幕工厂 竣工
ハンバルテフロン工業(株) ムン막(Munmak)工場竣工

1990. 02.
대만 T.Q.C INDUSTRAY에 PTFE LINED PIPE & FITTING의 성형 방법기술 이전
Transferred the plastic skills of PTFE Lined Pipe & Fitting to the TQC industry in Taiwan
台湾 ALLIED SUPREME CORP의 PTFE LINED PIPE & FITTING 技术转让
台湾 ALLIED SUPREME CORP에 PTFE LINED PIPE & FITTING의技術移転

1996. 11.
중소기업공단으로부터 ISO9002 품질인증획득
Acquired ISO9002 quality certification From Small & Medium Business Corporation(SBC)
获得 中小企业团 ISO9002 品质认证
中小企業公团から ISO9002品質認證獲得

1998. 07.
엠팩한발코리아㈜ 설립
Establishment EMPEAK HANBAL KOREA Co., Ltd.
EMPEAK HANBAL KOREA(株)成立
エンベック ハンバル코리아(株)設立

2000. 09.
인테그라스㈜ 설립
Establishment ENTERGRIS Co., Ltd.
ETERGRIS(株) 成立
インテグラス(株)設立

2001. 05.
㈜케이엠폴리머텍 설립 - 후성 및 미쯔비시의 J.V 회사
Established KM POLYMERTECH Co., Ltd. - FOOSUNG & MITSUBISHI invested
(株)KM POLYMERTECH 成立 (厚成 和 三菱 合资公司 成立)
(株)KMポリマーテク設立 (FOOSUNG及び三菱とのJ.V会社)

2001. 08.
중소기업진흥공단으로부터 ISO9002 품질인증 획득
Acquired ISO9002 quality certification From Small & Medium Business Corporation(SBC)
取得 ISO9002 品质认证
ISO9002品質認證獲得

2002. 10.
중소기업진흥공단으로부터 ISO9001 품질인등획득
Acquired ISO9001 quality certification From Small & Medium Business Corporation(SBC)
取得 ISO9001 品质认证
ISO9001品質認證獲得

2004. 03.
후성정공㈜ 불소수지 사업부문으로 편입
FOOSUNG PRECISION IND Co., Ltd. Transferred to fluoropolymer business
厚成精工(株) 氟树脂事业部 并购
FOOSUNG精工(株) フッ素樹脂事業部門に編入

2005. 10.
E.P (전해연마) 생산시설투자
Invested E.P (Electrolytic Polishing) in production facility
E.P(电解抛光) 生产设施 投资
E.P (電解研磨)生産施設投資

2006. 01.
ISO 9001 인증 취득 - TUV NORD
Acquired ISO 9001 - TUV NORD
ISO 9001 认证 - TUV NORD
ISO 9001 認証 - TUV NORD

2007. 05.
건설업 면허 취득 (기계 설비 공사업)
Acquired certification of construction industry (Mechanical Facility Work)
取得 建筑业许可 (机械 设备 工商业)
建設業免許取得(機械設備工事業)

2009. 12.
독성가스 밸브 제조인증 (PFA BALL VALVE) - KGS
Acquired toxic gas valve production (PFA BALL VALVE) - KGS
有毒气体阀门制造认证 (PFA BALL VALVE) - KGS
毒性가스バルブ製造認証 (PFA BALL VALVE) - KGS

2011. 05.
독성가스 밸브 제조인증 (PFA BALL CHECK VALVE) - KGS
Acquired toxic gas valve production (PFA BALL CHECK VALVE) - KGS
有毒气体阀门制造认证 (PFA BALL CHECK VALVE) - KGS
毒性가스バルブ製造認証 (PFA BALL CHECK VALVE) - KGS

2016. 01.
후성정공㈜ 불소수지 중국 Ningbo공장 증설
Factory Expansion - Ulsan Factory, China (Ningbo) Factory
新建 氟树脂 中国宁波工厂
フッ素樹脂中国寧波工場増設

2018. 11.
IATF16949 인증 취득 - NQA certification institution
CERTIFICATE IATF16949 - NQA certification institution
IATF16945 认证 - NQA 认证员
IATF16949認證 - NQA認證院

후성정공㈜ 라이닝 공장 증설(문막공단길 287)
Factory Expansion : FOOSUNG PRECISION CO., LTD(LINING FACTORY)
新建 氟树脂 衬氟工厂
ライニング工場増設

2021. 04.
비계구조물해체공사업 면허 취득
Acquisition of construction business license
- Scaffolding structure dismantling work
取得 建筑业 许可 (脚手架构造物拆除工程行业)
建設業免許認證 (足場構造物解体工事業)

2023. 06.
후성정공㈜ 불소수지 중국JV공장 신설
FOOSUNG CHUNHUAN Semiconductor Equipment and Equipment (Jiangsu) Establishment of a limited company
厚成春环半导体设备科技(江苏) 有限公司 成立
FOOSUNG春环半导体科技有限公司 (江蘇)有限公司設

FACTORIES OF FLUOROPOLYMER DIVISION

불소수지사업부 1공장
Fluoropolymer
Division Factory 1



불소수지사업부 2공장
Fluoropolymer
Division Factory 2



후성춘환반도체설비과기(장수)
유한공사
FOOSUNG CHUNHUAN
FLUORO TECHNOLOGY
(JIANGSU) CO., LTD.



PRODUCTS



당사의 불소수지 제품들은 반도체, 화학, 석유화학, 식품 및 약품제조, 제지 PLANT등의 가혹한 조건에서 안전된 성능과 오랜 수명을 유지합니다. 항상 품질 고도화와 경쟁력 강화로 고객을 최우선하는 기업이 되도록 노력하겠습니다.

Our company’s fluoro polymer products ensures stable performance and long life in hard conditions and it has been used in several environments such as semiconductor, petro-chemical engineering, chemical industry, food processing, pharmacy and papermaking. Foosung Precision is committed to improve quality, enhance competitiveness and give priorty to customer satisfaction.

弊社のフッ素樹脂製品は半導体、化学、石油化学、食品及び薬品製造、製紙プラント等の厳しい条件で安定性と長い寿命を維持します。いつも品質高度化と共に競争力を高めてお客様を最優先する企業になるため努力します。

本公司生产的氟树脂产品在半导体、化工、石油产业、食品及药品制造、造纸领域中,具有性能稳定,使用寿命长等特点我们一直通过自身努力,提高产品质量和加强市场竞争力,成为顾客至上的企业。

Products

TANK

LINED TANK
E.P TANK

LINED PIPE & FITTING

LINED PIPE
LINED FITTING
BELLOWS / EXPENSION JOINT
FLEXIBLE HOSE

LINED VALVE

BALL VALVE
DIAPHRAGM VALVE
BUTTERFLY VALVE
PLUG VALVE
BALL CHECK VALVE
WAFER CHECK VALVE
SAFETY VALVE
AUTO VALVE

OTHER PRODUCTS

PISTON RING / BACK UP RING (FOR AUTO MOBILE)
VALVE SEAT (RAD / HTR)
GASKET
PALL RING & RASCHIG RING

PRODUCT GUIDE

LINED TANK & EP TANK

당사에서 제작하는 TANK는 내부에 불소수지를 사용하여 라이닝된 제품과 전해연마(EP) 방식으로 내부 처리한 제품입니다. 당사에서는 불소수지 SHEET를 TANK 내부에 부착하는 방식으로 제작되며, 모든 원자재는 고순도의 불소수지를 사용하고 있습니다. 전해연마 제품은 2004년 부터 쌓아온 많은 경험과 노하우를 통하여 반도체급의 순정성과 안전성을 인정받고 있습니다.

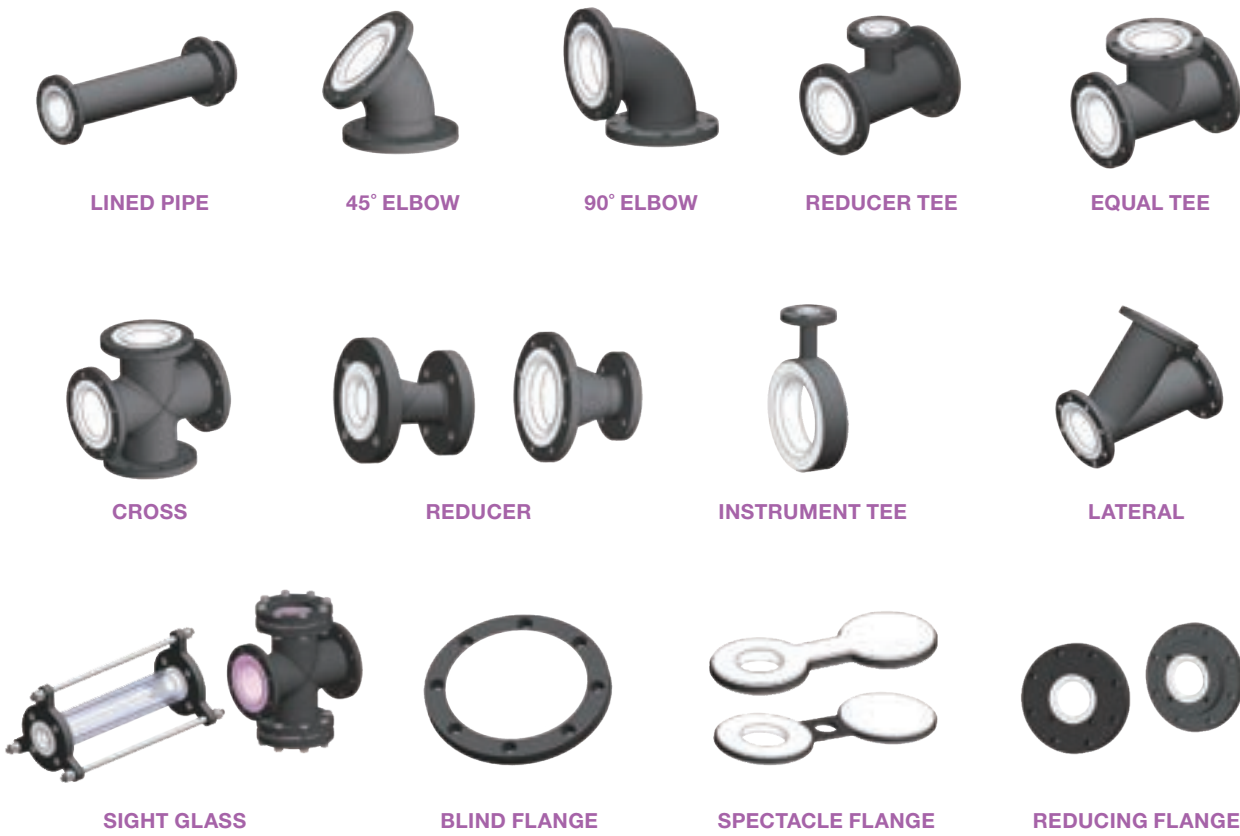
The TANKs manufactured by our company include products lined internally using fluorine resin and products internally treated using electrolytic polishing (EP). At our company, the lining is manufactured by attaching a fluoropolymer sheet to the inside of the tank, and all raw materials use high-purity pure fluoropolymer. Electrolytic polishing products are recognized for their semiconductor-grade purity and safety through extensive experience and know-how accumulated since 2004.

弊社で製作されるタンクの内部はフッ素樹脂で作られたライニング製品と電解研磨(EP)方式で内部処理された製品になります。弊社でフッ素樹脂シートをタンクの内部に付着する方でライニングが行われ、使われるフッ素樹脂は全ての原資材が高純度の純粋なフッ素樹脂になります。電解研磨製品は2004年から蓄積された豊かな経験とノウハウを通じて半導体級の純正性と安全性が認められています。

我司制作的罐体内部是使用四氟衬里产品及采用电解抛光(EP)方式进行内部处理的产品。我司采用将四氟板材粘贴到罐体内部的方式制作衬里,所有原材料均使用高纯四氟制品。电解抛光产品始于2004年,积累了丰富的技术经验,在半导体级领域的纯净性和安全性得到认可。



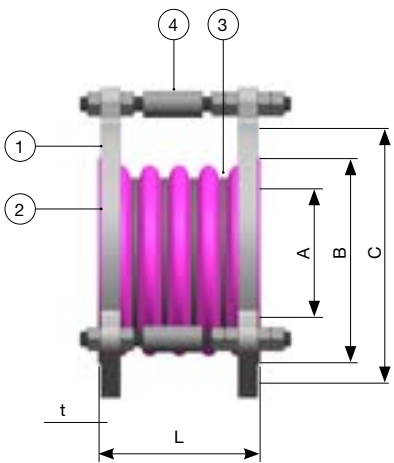
LINED PIPE & FITTING



SIZE	PIPE	90° ELBOW	45° ELBOW	TEE	CROSS TEE	REDUCER	INSTRUMENT TEE
1/2" (15A)	Max. 3000	70	45	70	70	-	Refer to Detail Catalogue page of Pipe & fitting
3/4" (20A)	Max. 3000	80	45	80	80	100	
1" (25A)	Max. 3000	89	60	89	80	100	
1-1/2" (40A)	Max. 3000	102	60	102	102	100	
2" (50A)	Max. 3000	114	64	114	114	127	
2-1/2" (65A)	Max. 3000	127	76	127	127	127	
3" (80A)	Max. 3000	140	76	140	140	152	
4" (100A)	Max. 3000	165	102	165	165	152	
5" (125A)	Max. 3000	194	114	194	194	*	
6" (150A)	Max. 3000	203	127	203	203	200	
8" (200A)	Max. 3000	228	140	228	228	200	
10" (250A)	Max. 3000	280	165	280	Refer to Tee	250	
12" (300A)	Max. 2000	312	196	305	Refer to Tee	300	
14" (350A)	Max. 2000	356*	191	356*	Refer to Tee	*	
16" (400A)	Max. 2000	407*	203	407*	Refer to Tee	*	
18" (450A)	Max. 2000	457*	216	457*	Refer to Tee	*	
20" (500A)	Max. 2000	508*	241	508*	Refer to Tee	*	
24" (600A)	Max. 1500	*	*	*	Refer to Tee	*	

BELLOWS

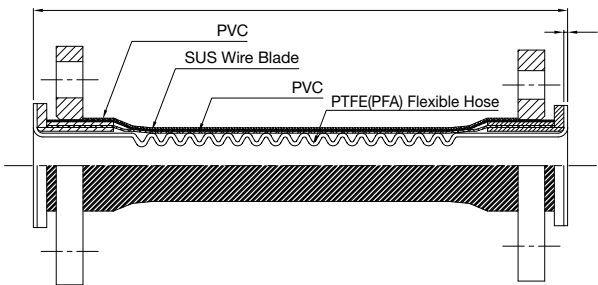
- FS BELLOWS
PTFE 1PLY TYPE
- FP BELLOWS
1PLY+CAP RING TYPE
- FVP BELLOWS
1PLY+CAP RING
+VACUUM RING
- FV BELLOWS
1PLY
+VACUUM RING TYPE
- FM BELLOWS
1PLY+Metal housing



SIZE		Corrugation	Length (mm)	
ANSI	JIS		3 Con	5 Con
1"	25A	3 Con or 5 Con	-	80
1-1/2"	40A		67	100
2"	50A		70	100
2-1/2"	65A		88	120
3"	80A		90	130
4"	100A		98	146
5"	125A		98	146
6"	150A		98	165
8"	200A		135	220
10"	250A		180	225
12"	300A		140	230
14"	350A		140	230
16"	400A	(5 con)	145	230
18"	450A		230 (5 con)	
20"	500A		165 (2 con)	
24"	600A		175 (2 con)	

FLEXIBLE HOSE

FLEXIBLE HOSE TYPE



END CONNECTIONS



DIMENSION TABLE

Size ANSI/JIS	LENGTH (L)		ID (Ø)		THICKNESS (T)			Minimum radius.(mm)
	Maximum	Tolerance	PFA	PTFE	PFA	PTFE	Tolerance	
1/2"(15A)	3000L	± 3.0	9.7 or 16	-	1.5		± 5.0%	80
3/4"(20A)	3000L		16 or 22	25	1.5	2.5		100
1"(25A)	3000L		22	28	1.5	2.5		120
1-1/2"(40A)	3000L		48	37	1.5	2.5		200
2"(50A)	3000L		48	50	1.5	2.5		300
2-1/2"(65A)	3000L			68	-	3		350
3"(80A)	3000L			73	-	3		400
4"(100A)	2000L			93	-	3		500
6"(150A)	2000L			143	-	3.5		800

Materials * PFA STANDARD CODE : ASTM D3307 / * PTFE STANDARD CODE : ASTM D4894

LINED VALVE

PFA LINED BALL VALVE



SIZE
1/2" ~ 6"
15A ~ 150A

RATING
ANSI150#
JIS10K

Material
Stainless Steel + PFA
Carbon Steel + PFA

PFA LINED DIAPHRAGM VALVE



SIZE
1/2" ~ 4"
15A ~ 100A

RATING
ANSI150#
JIS10K

Material
Stainless Steel + PFA
Carbon Steel + PFA

PFA LINED BUTTERFLY VALVE



SIZE
2" ~ 12"
50A ~ 300A

RATING
ANSI150#
JIS10K

Material
Stainless Steel + PFA
Carbon Steel + PFA

PFA LINED PLUG VALVE



SIZE
1/2" ~ 12"
15A ~ 200A
* upto 200A for JIS Model

RATING
ANSI150#
JIS10K

Material
Carbon Steel + PFA

PFA LINED BALL CHECK VALVE



SIZE
1/2" ~ 6"
15A ~ 150A

RATING
ANSI150#
JIS10K

Material
Stainless Steel + PFA
Carbon Steel + PFA

PFA LINED WAFER CHECK VALVE



SIZE
1-1/2" ~ 10", 16"
40A ~ 250A

RATING
ANSI150#
JIS10K

Material
Stainless Steel + PFA
Carbon Steel + PFA

SAFETY VALVE



SIZE
20A, 25A, 50A

RATING
JIS10K

Materia
316SS / PTFE
316SS / E.P

ON-OFF VALVE



OTHER PRODUCTS

PALL RING / RASCHIG RING



SIZE
3/8" ~ 3"

Material
PALL RING - PFA
RASCHIG RING - PTFE

PFA TUBE / PFA PIPE



SIZE
1/4" ~ 2"
15A ~ 80A

Material
PFA

GASKET



SIZE
1/2" ~ 24"

Material
PTFE

FLANGE STOPPER



SIZE
3/4" ~ 10"

Material
PP or PVDF

****특허 보유중**
Patented in Republic of Korea

VALVE SEAT



SIZE
Φ20~Φ55

Material
Compounded PTFE

PISTON / GUIDE RING



SIZE
Φ20~Φ55

Material
PTFE
(Glassfiber blended)

ELECTRIC COMPRESSOR SEAL (SHAFT SEAL)



SIZE
Φ20~Φ55

Material
Compounded PTFE

BACKUP PLATE



SIZE
Φ4~Φ10

Material
Compounded PTFE

CERTIFICATIONS



ISO 9001



ISO 14001



ISO 45001



CE0045
BALL VALVE / PLUG VALVE



U STAMP



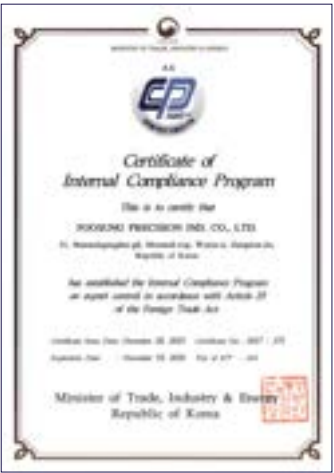
CSEL (PRESSURE VESSEL)



LICENSE OF CONSTRUCTION



LICENSE OF CONSTRUCTION



CERTIFICATE OF
INTERNAL COMPLIANCE PROGRAM IN
REPUBLIC OF KOREA

PATENTS



유동형 플랜지 고정용 스톱퍼
Stopper for fixing lap-joint flange



반투명 캡 너트
Translucent cap nut



탱크 맨홀을 피복 시트
및 이를 이용한 라이닝 방법
Covering sheet for tank manhole
and lining method using it



튜브 인서트 배관
Tube insert piping



PFA 수지의 사출 성형에 의한 벨로즈 제조방법
Method for manufacturing bellows
by injection molding of PFA resin



화학장비용 노즐
Nozzle for chemical equipment



반투명 컬렉터
Translucent collector



노즐 결합체
Nozzle assembly

PROPERTIES OF
FLUORO POLYMER



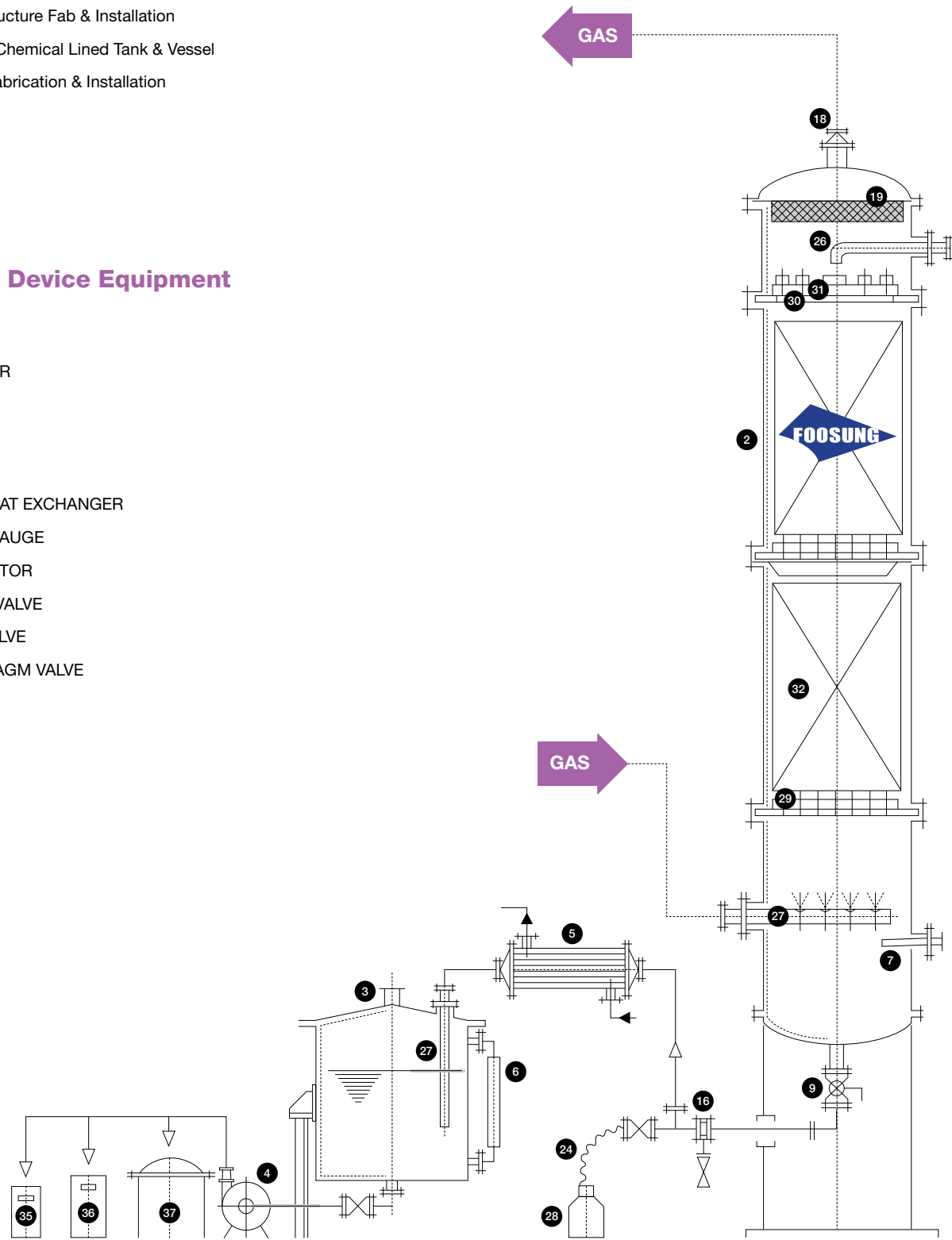
특성 / Property		단위 / UNIT	ASTM Test Method	TFE (PTFE)	PFA	ETFE	FEP	CTFE	VdF(PVdF)	VF(PVF)
물리적성질 Physical	비중 Specific gravity	-	D792	2.14-2.20	2.12-2.17	1.7	2.12-2.17	2.1-2.2	1.75-1.78	1.4
	융점 Melting point	℃	D3418	327	302~310	270	253~282	210~212	170	200~210
	인장강도 Tensile strength	kgf/cm ²	D638	280~350	320	455	200~320	300~400	400~520	300~400
기계적성질 Mechanical	신장율 Elongation	%	D638	200-400	280-300	200	250-330	80-250	100-300	150-200
	압축강도 Compressive strength	kgf/cm ²	D695	120	-	500	150	320-520	600	-
	인장탄성율 Modulus of elasticity in tension	10 ³ kgf/cm ²	D638	4	-	8.4	3.5			11
	굽힘탄성율 Modulus of elasticity in bending	10 ³ kgf/cm ²	D790	3.5-6.3	6.7-7.0	14	6.7	17.6	14.0-18.0	-
	충격강도 IZOD Impact strength	kg·cm/cm	D256	16.3	Not Destroyed	Not Destroyed	Not Destroyed	13.6-14.7	19.6-21.8	-
	경도 Hardness	Rockwell Durometer	D785 D2240	R25 D55	- D60	R50 D75	R25 D55	R75-95 D74-90	R110-115 D75-80	- -
	열전도도 Thermal conductivity	10-4cal/cm·sec·℃	C177	5.9	-	5.7	6	4.7-5.3	3	4.9
열적성질 Thermal	비열 Specific heat	cal/℃/g	D240	0.25	-	0.46-0.47	0.28	0.22	0.33	-
	선팽창계수 Coefficient of linear expansion	10-5/℃	D696	9.9 (23-66℃)	12 (21-100℃)	9-9.3 (20-90℃)	8.3-10.5 (-73~71℃)	4.5-7.0	8.5	3.95
	연속사용온도 Continuous service temperature	℃	-	260	260	150	200	180	150	107
	열변형온도 Heat distortion of temperature	4.6kgf/cm ² -℃	D648	121	75	-	72	115	145	-
		18.5kgf/cm ² -℃	D648	55	48	74	50	76	90	-
전기적성질 Electrical	체적저항율 Volume resistivity	Ω·cm	D257	>1018	>1018	>1016	>1018	>1016	2.0 × 1014	4 × 1013
	표면저항율 Surface resistivity	Ω	D257	>1016	>1016	5×1014	>1016	-	-	-
	절연파괴강도 Dielectric strength	(1/8inch) kV/mm	D149	16-24	20-24	16	20-24	20-24	10.2	-
	유전율60Hz Dielectric constant	-	D150	<2.1	2.1	2.6	2.1	2.24-2.8	8.4	-
	유전율103Hz Dielectric constant	-	D150	<2.1	2.1	2.6	2.1	2.27-2.7	7.72	7.4
	유전율106Hz Dielectric constant	-	D150	<2.1	2.1	2.6	2.1	2.3-2.5	6.43	-
	내산성 Acid-resistance	-	D543	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good
화학적성질 Chemical	내알칼리성 Akaline-resistance	-	D543	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good
	내용제성 Resistance to solvents	-	D543	Excellent	Excellent	Excellent	Excellent	Excellent	케톤또는 극성용매에 악함	-
	연소성 Combustibility	-	D635	Incombustibility	Incombustibility	Incombustibility	Incombustibility	Incombustibility	Self- Extinguishing	Self- Extinguishing
내구성 Durability	흡수율 Water absorption	-	D570	<0.01	0.03	0.029	<0.01	0	0.04	<0.5

PLANT ENGINEERING & CONSTRUCTION

- 01 Detail Engineering of Equipment & Piping
- 02 Steel Structure Fab & Installation
- 03 Semi. & Chemical Lined Tank & Vessel
- 04 Piping Fabrication & Installation

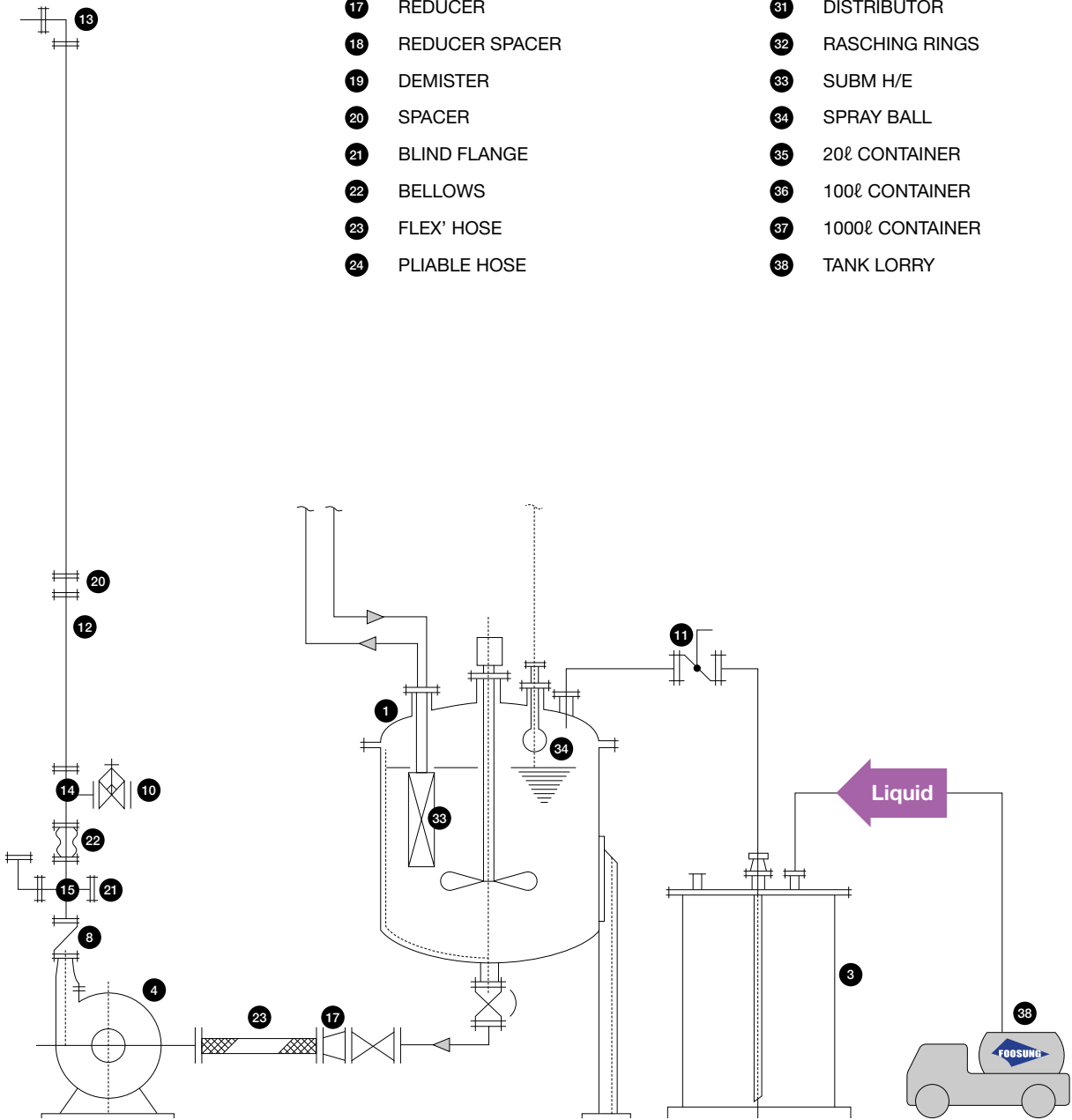
FPI Lined Device Equipment

- 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



Part Name

- 11 BUTTERFLY VALVE
- 12 PIPE
- 13 ELBOW
- 14 TEE
- 15 CROSS
- 16 INSTRUMENT TEE
- 17 REDUCER
- 18 REDUCER SPACER
- 19 DEMISTER
- 20 SPACER
- 21 BLIND 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 RASCHIG RING
- 31 DISTRIBUTOR
- 32 RASCHIG RINGS
- 33 SUBM H/E
- 34 SPRAY BALL
- 35 20ℓ CONTAINER
- 36 100ℓ CONTAINER
- 37 1000ℓ CONTAINER
- 38 TANK LORRY



LINED TANK/EP TANK
LINED PIPE & FITTING
LINED VALVE
AUTOMOBILE & PRECISION PART

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