

TANK & HEAT EXCHANGER

Lined Tank & Container, etc

Clean Room & Inspection System

Features of Various Fluoropolymers

Heat Exchanger

LINED TANK & CONTAINER, ETC

INTRODUCTION & FEATURES

Introduction

Weeon unique sheet lining has best character which is fluorine, for example anticorrosion and non-adhesive against chemical, fluid, electric properties, etc into a wide range of temperatures. Munmak Factory has used various material fluorine sheet for column, vessels and tanks We have been recognized for our high technology from customers related to precision chemical, semiconductor, pharmacy, metal, etc.

Weeon chooses manufacturing method according to our experience of over 30 years and studies in GENERAL HEAT-GLUE SHEET LINING, DOUBLE SHELL SHEET LINING, VACUUM SHEET LINING, ROTATION MOLDING.

불소수지 SHEET LINING은 저온에서 고온까지 넓은 온도범위 내에서 최고의 내약품성, 전기적 특성, 비점착성 등 불소수지의 여러 가지 특성을 최대한으로 응용하여 정밀화학, 반도체, 제약, 금속 등의 여러 가지 조건 하에서도 안정된 성능을 요구하는 COLUMN, VESSEL, TANK류에서 높은 평가를 받고 있습니다.

당사는 일반 점착라이닝, 이중관체라이닝, 진공점착라이닝, 로테이션 몰딩을 실시하고 있습니다.

Features

1. Excellent flame retardancy and heat resistance.
2. Excellent chemical resistance
3. Good electric insulation and high frequency characteristics
4. Friction and abrasion : Lowest friction coefficient and unique self-lubrication Various fillers (carbon, graphite, molybdenum bisulfite, bronze) are mixed to improve abrasion resistance and load capacity.
5. Non-adhesion : PTFE is particularly strong in this feature. It detaches well even when contacting with adhesive materials.

1. 난연성 및 우수한 내열성
2. 우수한 내약품성
3. 전기절연성이 양호, 고주파특성 우수
4. 마찰 및 마모성 : 가장 낮은 마찰계수, 특이한 자기윤활성 보유. 각종 충진제 (탄소, 흑연, 2황하몰리브덴, 브론즈)를 배합하여 내마모성, 내하중성을 향상.
5. 비점착성 : PTFE는 특히 이 성질이 강함. 점착성 물질과 접촉하여도 잘 떨어짐.

Lining sheet welding section view



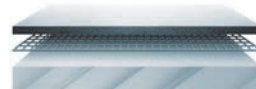
A : Lining sheet = PTFE / PFA / PVDF / ECTFE / PP
(Surface Type : Glass back or Etching)
Thickness : 2-5mm
B : Bonding (Primer + Adhesive)
C : Housing (SS400 or SUS)

Rotation molding section view



A : Lining = PFA, ETFE, PE Thickness : 2-5mm
B : Housing (SS400 or SUS)

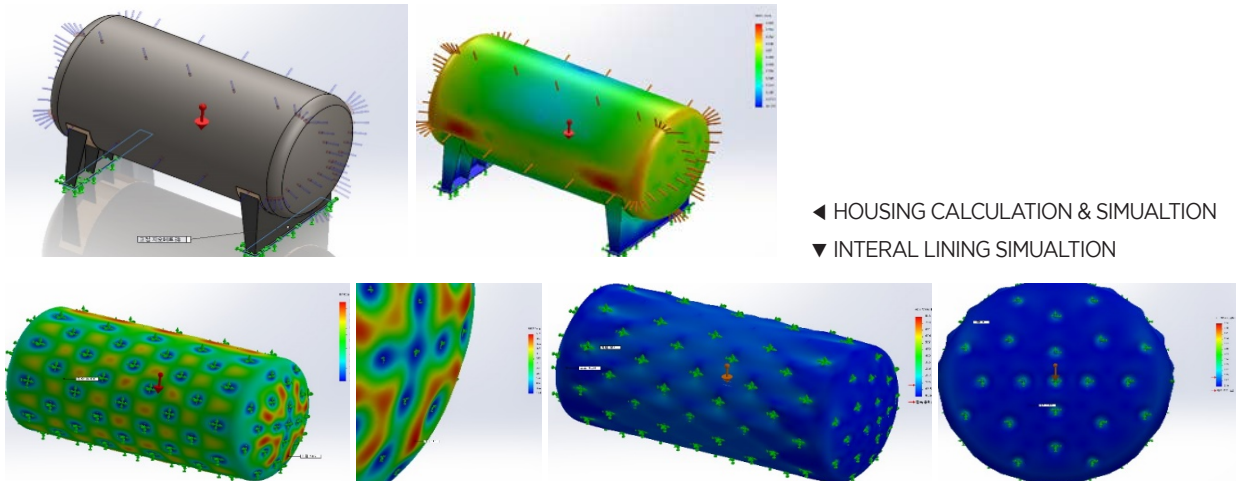
Special type lining system(PFA molding with mesh) Application : High temperature & Vacuum condition



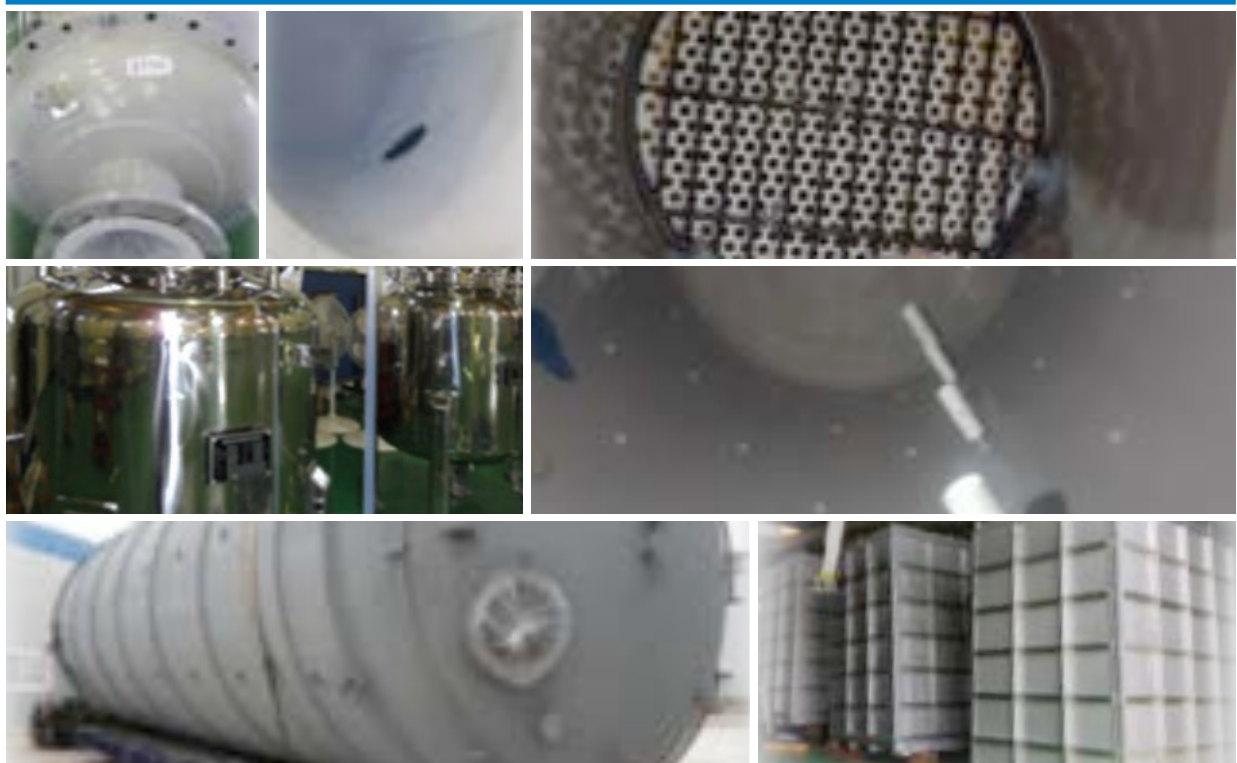
A : Lining = PFA Thickness : 7-8mm
B : Mesh : SUS304
C : Housing (SS400 or SUS)

이중관, bolting 고정방식, Vacuum ring 삽입방식 등 이외 다양한 사용 조건에 맞는 제품을 생산 중입니다.

CALCULATION & SIMUALTION

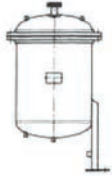


PRODUCTS PHOTO

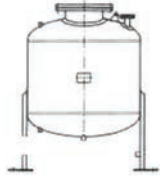


DIMENSION TABLE

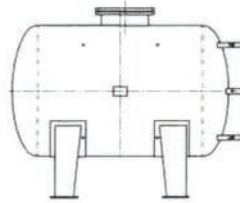
Products Type



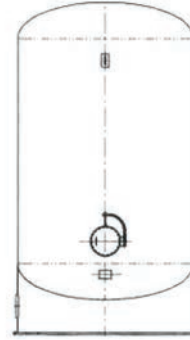
A type



B type



C type



D type



E type

NO	Volume(m3)	Type	Dimension	Thickness	Remark
1	0.1	A	ID 500 X 450 FL	4~8mm	Vertical Pressure Tank with Girth Flange
2	0.2	A	ID 600 X 640 FL		
3	0.3	A	ID 700 X 700 FL		
4	0.4	A	ID 750 X 820 FL		
5	0.5	A	ID 800 X 900 FL		
6	0.6	A	ID 850 X 960 FL		Vertical Pressure Tank with Girth Flange & ManHole
7	0.7	A	ID 900 X 1000 TL		
8	0.8	A	ID 950 X 1010 TL		
9	0.9	A	ID 950 X 1150 TL		
10	1.0	A	ID 1050 X 1050 TL		
11	1.2	B/C	ID 1050 X 1270 TL	6~12mm	Vertical & Horizontal Pressure & Storage Tank with Manhole (500A or 20')
12	1.5	B/C	ID 1170 X 1270 TL		
13	2.0	B/C	ID 1220 X 1580 TL		
14	2.5	B/C	ID 1350 X 1580 TL		
15	3.0	B/C	ID 1480 X 1580 TL		
16	4.0	B/C	ID 1600 X 1800 TL		
17	5.0	B/C	ID 1750 X 1860 TL		
18	6.0	B/C	ID 1850 X 2000 TL		
19	7.0	B/C	ID 1850 X 2380 TL		
20	8.0	B/C	ID 1940 X 2470 TL		
21	9.0	B/C	ID 2050 X 2480 TL		
22	10	B/C	ID 2050 X 2780 TL		
23	12	B/C	ID 2230 X 2800 TL		
24	15	B/C	ID 2480 X 2800 TL		
25	20	B/C	ID 2720 X 3100 TL		
26	25	B/C	ID 3030 X 3090 TL		
27-1	30	D	ID 2860 X 4310 TL	9~15mm	Skirt & Con-roof Storage Tank with Manhole (500A or 20')
27-2	30	E	ID 2900 X 4540 TSL		
28-1	40	D	ID 3200 X 4570 TL		
28-2	40	E	ID 3350 X 4570 TSL		
29-1	50	D	ID 3400 X 5080 TL		
29-2	50	E	ID 3400 X 5510 TSL		
30-1	60	D	ID 3500 X 5800 TL		
30-2	60	E	ID 3630 X 5800 TSL		
31-1	70	D	ID 3670 X 6160 TL		
31-2	70	E	ID 3820 X 6100 TSL		
32-1	80	D	ID 3800 X 6580 TL		
32-2	80	E	ID 3790 X 7100 TSL		
33-1	90	D	ID 3750 X 7680 TL		
33-2	90	E	ID 3800 X 8000 TSL		
34-1	100	D	ID 3900 X 8000 TL		
34-2	100	E	ID 3900 X 8400 TSL		

※용량 계산 기준

- Oper. Volume - TL to TL + Bottom Head (단, Volume 산정의 기준은 user의 요청에 따라 바뀔 수 있습니다.)

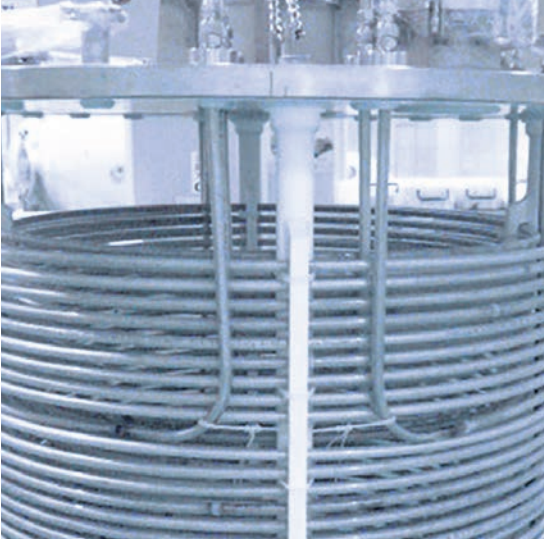
FEATURES OF VARIOUS FLUOROPOLYMERS



특성 / Properties		단위 /Unit	ASTM Test Method	TFE (PTFE)	FEP	PFA	ETFE	CTFE	VdF(PVdF)	VF(PVF)
물리적성질 Physical	비중 Specific gravity	-	D792	2.14~2.20	2.12~2.17	2.12~2.17	1.7	2.1~2.2	1.75~1.78	1.4
	용점 Melting point	°C	D3418	327	253~282	302~310	270	210~212	170	200~210
기계적성질 Mechanical	인장강도 Tensile strength	kgf/cm ²	D638	280~350	200~320	320	455	300~400	400~520	300~400
	신장률 Elongation	%	D638	200~400	250~330	280~300	200	80~250	100~300	150~200
	압축강도 Compressive strength	kgf/cm ²	D695	120	150	-	500	320~520	600	-
	인장탄성률 Modulus of elasticity in tension	10 ³ kgf/cm ²	D638	4	3.5	-	8.4			11
	굽힘탄성률 Modulus of elasticity in bending	10 ³ kgf/cm ²	D790	3.5~6.3	6.7	6.7~7.0	14	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	D785	R25	R25	-	R50	R75~95	R110~115	-
Durometer		D2240	D55	D55	D60	D75	D74~90	D75~80	-	
열적성질 Thermal	열전도도 Thermal conductivity	10 ⁻⁴ cal/cm · sec · °C	C177	5.9	6	-	5.7	4.7~5.3	3	4.9
	비열 Specific heat	cal/°C/g	D240	0.25	0.28	-	0.46~0.47	0.22	0.33	-
	선형팽계수 Coefficient of linear expansion	10 ⁻⁵ /°C	D696	9.9 (23~66°C)	8.3~10.5 (-73~71°C)	12 (21~100°C)	9~9.3 (20~90°C)	4.5~7.0	8.5	3.95
	연속사용온도 Continuous service temperature	°C	-	260	200	260	150	180	150	107
	열변형온도 Heat distortion of temperature	4.6kgf/cm ² -°C	D648	121	72	75	-	115	145	-
18.5kgf/cm ² -°C		D648	55	50	48	74	76	90	-	
전기적성질 Electrical	체적저항률 Volume resistivity	Ω · cm	D257	>10 ¹⁸	>10 ¹⁸	>10 ¹⁸	>10 ¹⁶	>10 ¹⁶	2.0 × 10 ¹⁴	4 × 10 ¹³
	표면저항률 Surface resistivity	Ω	D257	>10 ¹⁶	>10 ¹⁶	>10 ¹⁶	5 × 10 ¹⁴	-	-	-
	절연파괴강도 Dielectric strength	(1/8inch) KV/mm	D149	16~24	20~24	20~24	16	20~24	10.2	-
	유전율60Hz Dielectric constant	-	D150	<2.1	2.1	2.1	2.6	2.24~2.8	8.4	-
	유전율103Hz Dielectric constant	-	D150	<2.1	2.1	2.1	2.6	2.24~2.7	7.72	7.4
유전율106Hz Dielectric constant	-	D150	<2.1	2.1	2.1	2.6	2.3~2.5	6.43	-	
화학적성질 Chemical	내산성 Acid-proofness	-	D543	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good
	내 알칼리성 Alkali-proofness	-	D543	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good
	내용제성 Resistance to solvents	-	D543	Excellent	Excellent	Excellent	Excellent	Excellent	케톤 또는 극성용매에 약함	-
내구성 Durability	연소성 Combustibility	-	D635	Incombustibility	Incombustibility	Incombustibility	Incombustibility	Incombustibility	Self-Extinguishing	Self-Extinguishing
	흡수율 Water absorption	-	D570	<0.01	<0.01	0.03	0.029	0	0.04	<0.5

Heat Exchanger

INTRODUCTION & FEATURES



Introduction

Weon's Heat Exchanger has corrosion resistance and contamination resistance. For these reason, It can be used on chemical industry, coating, acid cleaning for steel industry and finishing works on steel surface.

Weon can design and manufacture shell & tube type, coil type, panel type, etc with heat transfer area from 0.1 to 200 square meter according to equipment and vessel volume, type.

Heat Exchanger는 불소수지가 갖고 있는 내식성, 내오염성 등의 우수한 특성을 최대한 활용한 열 교환기로서, 금속표면처리, 철강산세, 도금공업, 화학공업 등 여러 가지 용도에 사용할 수 있습니다.

Shell & Tube형, Panel형, Coil형 등이 있으며, 장치 및 용기의 크기 또는 형상에 따라 0.1㎡ 에서 200㎡까지 설계가 가능합니다.

Features

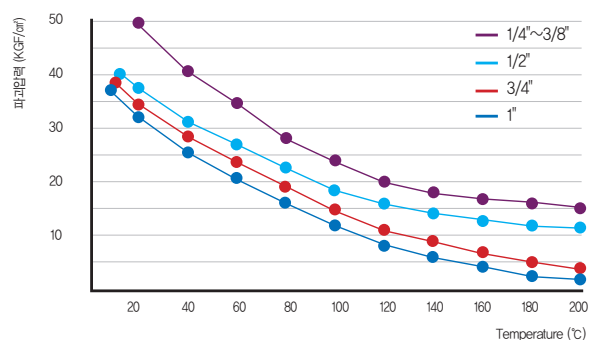
- Excellent chemical resistance**
Fluoroplastic is inert for virtually all industrial chemicals, and used in a wide range of applications since there is no limit to purpose of use
 - Fluid does not pollute and realization minimum grade of eruption ion**
The surface of fluoroplastic is very smooth and highly non-adhesive, and the attachment and accumulation of stains and scales is effectively prevented.
 - Excellent Pressure and heat resistance**
both heating steam and saturated can be used, up to the continuous use temperatuer of 158.1, 5Kg/cm2G
 - Excellent mechanical shock**
The heat exchanger tubes made of glass graphite materials never get damaged by heat or mechanical shock
 - Easy Maintenance**
Tubes damaged by accidents can be simply repaired/replaced, and their effective heat exchanger arer is not reduced.
- 내약품성** 불소수지는 사실상 모든 공업용 약품에 대하여 불활성이며, 사용 목적에 제한이 없어 광범위한 분야에 사용됩니다.
 - 내오염성** 불소수지의 표면은 대단히 미끄럽고 최고의 비점착성 물질로서 오염, scale의 부착, 누적을 방지합니다.
 - 내압, 내열성** 가열증기, 포화증기 모두 이용할 수 있으며 연속 사용 온도 158.1℃, 5Kg/cm2G까지 사용 가능 합니다.
 - 내구성** Glass graphite 등의 재료와 같이 열과 기계적 충격으로 인하여 전열관이 파손되는 경우가 없습니다.
 - 보수** 돌발사고 등으로 인한 Tube 파손 시에도 간단히 보수, 교체 등이 가능하며, 유효 전열 면적을 감소시키지 않습니다.

Breakdown pressure of various tubes by temperature

각종 튜브의 온도별 파괴압력

The above figure shows the temperature break down pressure according to various sizes of PFA tubes. Typically, recommended pressure is 1/3 to 1/4 or less of the breakdown pressure.

상기의 그림은 PFA 튜브의 각종 사이즈에 따른 온도파괴 압력입니다. 추천 사용 압력은 파괴압력의 1/3~1/4 이하입니다.

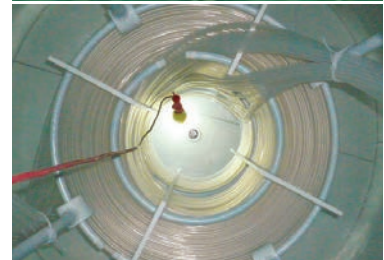


TYPE OF HEAT EXCHANGER

Tank Coil Heat Exchanger

1. The Tank-Coil type can be freely designed into the space of a reactor, concentratio tube, disassembly tube, condenser, or a cooler.
2. The Tank-Coil type has higher heat exchanging effect by Agitaitng, because the movement of the coil it self removes scales and crystals from tube surface or between coils.
3. The Tank-Coil type can be installed regardless of the companion material.
4. The Tank-Coil type has no such problems as corrosion, staining, instsslation and economic problems.

1. Tank-Coil형은 Reactor, 농축관, 분해관, 응축기, 냉각기의 Space에 자유롭게 설계 가능합니다.
2. Tank-Coil형은 교방에 의하여 전열효과가 높아집니다.
이것은 Coil자신의 움직임에의하여 Tube표면 또는 Coil간의 Scale, 결정이 떨어지기 때문입니다.
3. Tank-Coil형은 상대 재질에 관계없이 설치가 가능합니다.
4. Tank-Coil형은 부식문제, 오염문제, 설치와 경제성문제, Acid 내에 철분유출등에 문제가 없습니다.



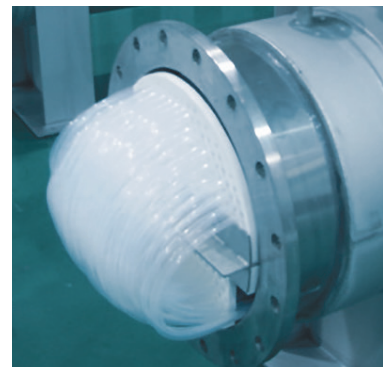
U-Coil Heat Exchanger

1. The U-Coil type can be designed in accordance with the heating or cooling space in the Immersion Tube that uses a fluoroplastic heat exchanger tube.
2. The types of heat exchanger tubes of the U-Coil type Heat Exchanger include circular, elliptic, and track types.
It consists of 32m(1) for each 10mm of heat exchange effective length.

1. U-Coil형은 불소수지 전열 Tube를 사용한 immersion Tube의 가열, 냉각 Space에 맞추어 설계할 수 있습니다.
2. U-Coil형은 열교환기의 일정한 길이의 전열 Tube는 원형 타원형, Track형이 있으며, 1본의 전열 유효길이 10mm경에 32m(1㎡)으로 구성됩니다.

Shell & Tube Heat Exchanger

1. The shell & tube type is a form of the heat exchanger which is general.
The chemicals and all surface which contact use the PFA tube & PTFE lining.
1. Shell & Tube형은 가장일반적인 열교환기의 형태이며, 약품과 접촉하는 모든 구간은 불소수지를 이용하여 제작된다.





(주)위온은 독일인증기관인 TUV NORD를 통하여 품질경영 시스템을 획득하였습니다.

Challenge to the New Technology!



esp|BASKET

spl|BASKET

SCOPE OF BUSINESS

- Engineering Service (Chemical Plant)
- R & D factory (DESIGN / R&D / Outsourcing)
- Chemical facilities Manufacture & sales product

PRODUCTS

- LINED TANK & HEAT EXCHANGER
- LINED PIPE & FITTING
- LINED VALVE & AUTO CONTROL VALVE
- BELLOWS & FLEXIBLE HOSE
- GASKET & PACKING
- PFA TUBE & FITTING



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