PLATE HEAT EXCHANGER

판 형 열 교 환 기
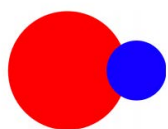
Titania Engineering Co., LTD

Fig.1 General Structure of Plate Heat Exchanger
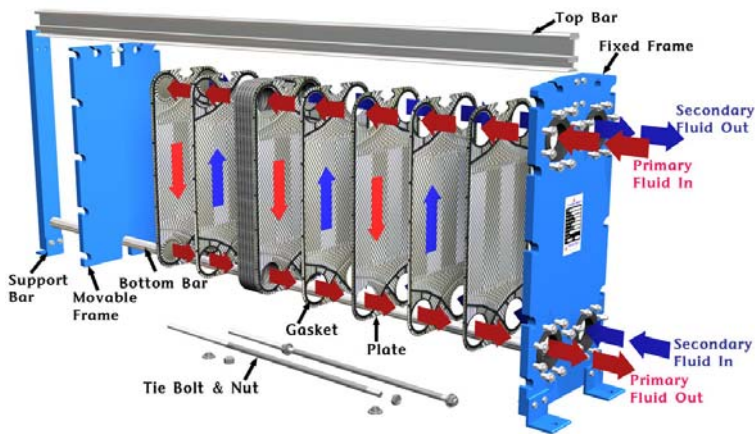
• Plate Heat Exchanger(PHE) consists of corrugated thin heat plates, seal gaskets, top & bottom bar, frame and etc. The heat plates have high heat transfer coefficients by turbulent flow of the channel band. The seal gaskets are Easy-Hook type (or Clip type) for assembling without glue.

• Top & Bottom Bar are connected with Support Bar & Frame for the construction of Plate heat exchanger and play a role as a guide of the heat plates to be assembled.
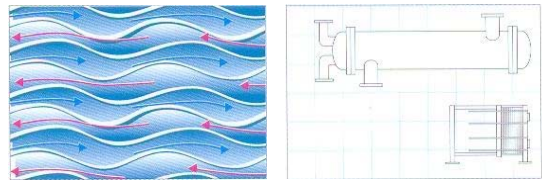
1. Heat transfer coefficients HIGH

• Heat transfer coefficients are 3,000 ~ 6,000 kcal/㎡.℃.hr on Water/water applications.

2. Installation space LESS

• Installation space of 1/5 of Tubular is only required.
  Extra Opening space is not needed for maintenance.

3. Economics HIGH

• It can save the investment cost because the high heat transfer rates make the heat transfer area to decrease, remarkably, more than the other kinds of heat exchangers.
  Especially, It is excellent in expensive nonferrous metals such as Titanium, Hastelloy and etc..

4. Fouling LESS

• Performance degradation is almost not occurred by operation for a long time because the high friction factor and turbulence's flow prevent the heat plates from clinging of the scale.

5. Convenience of Maintenance HIGH

• Supply of Plates and Gaskets is so easy by the standardized component.
• Minimized of Shut-down time within Max. one day by the 2~3 hours for maintenance.
• Inspection and replacement of Plates and gaskets are so easy without piping opening.
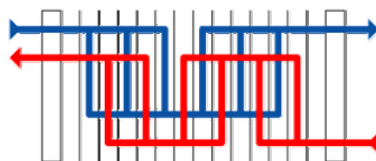
6. Variety of Design HIGH

• It can easily correspond to changes in the number of plates for the amendment of capacity and design condition.
• Variety of designs such as single pass, multi pass, Double section and etc. can be applied.
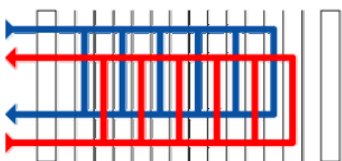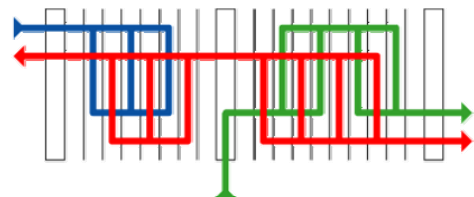

• SINGLE PASS
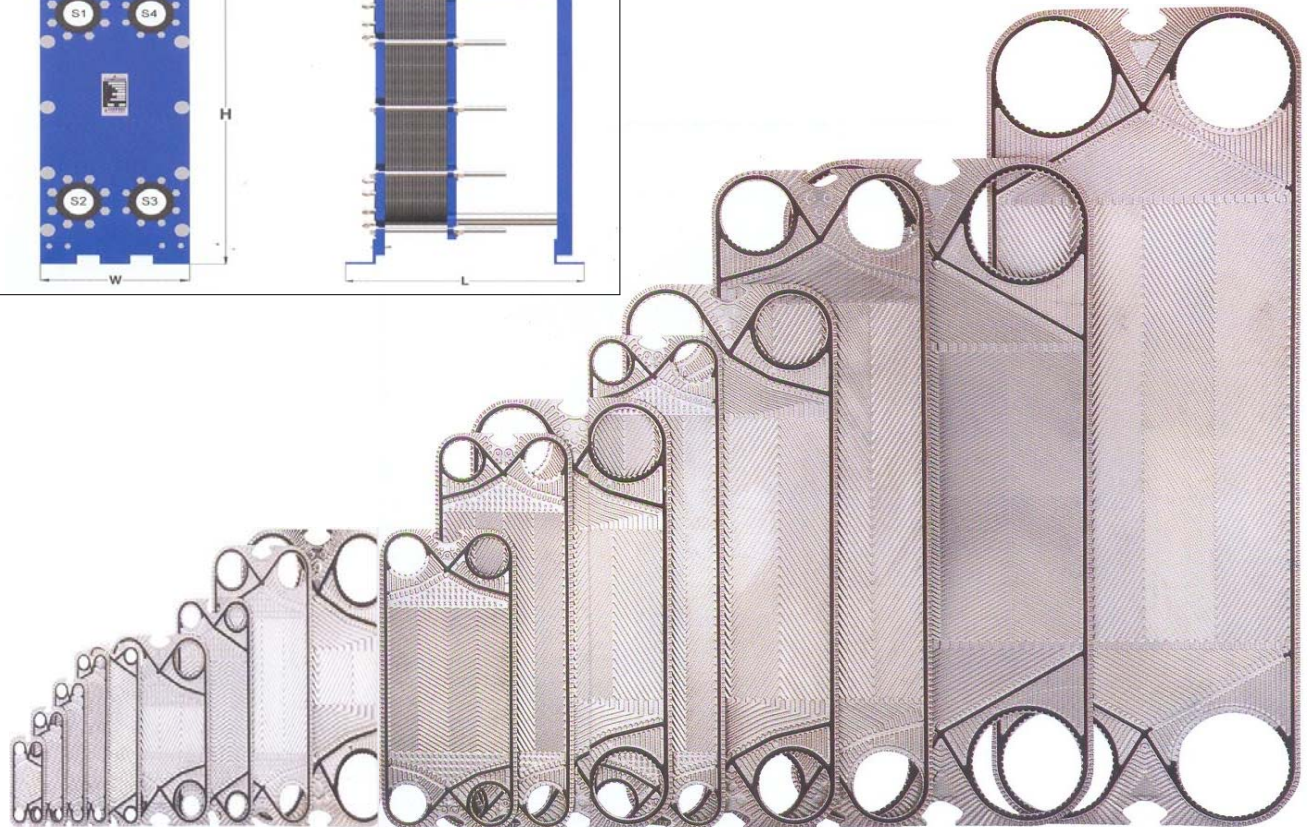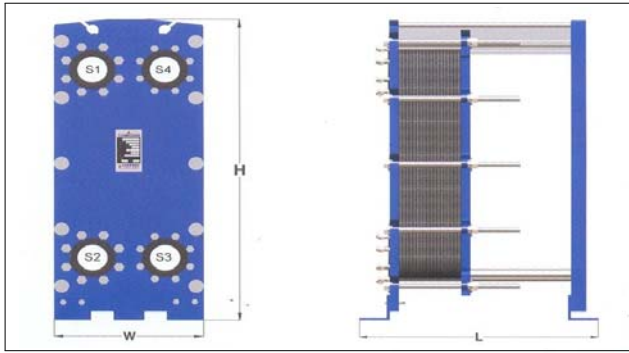For the Normal Thermal Length

• MULTI PASS
For the Big Thermal Length
(Food industry & Heat recovery system)

• DOUBLE SECTION
Heat Exchange for three kind of fluid
(Pre-cooling or Pre-heating)

STANDARD DIMENSION

MODEL		AREA	STANDARD	MAX FLOW	SIZE mm		
		m²	NOZZLE SIZE	m³/hr	W	H	L
TX05		0.0152	3/4"(20A)	4	128	270	70 ~ 320
TX07		0.034	1½"(40A)	12	192	466	330 ~ 510
TX3	GD	0.090	2½"(65A)	50	346	775	517 ~ 1680
	AN	0.170				1145	
	AX	0.250				1515	
TX4	GD	0.101	4"(100A)	120	495	874	780 ~ 1780
	AP	0.228				1151	
	AN	0.348				1428	
	AX	0.467				1705	
TX8	GD	0.370	8"(200A)	550	740	1459	1390 ~ 1780
	AN	0.680				1944	
TX9	GD	0.270	8"(200A)	550	740	1297	1150 ~ 2770
	AP	0.470				1620	
	AN	0.680				1944	
	AX	0.890				2267	
TX14	GD	0.840	12"(300A)	1200	1012	1922	1360 ~ 5060
	AP	1.280				2338	
	AN	1.620				2754	
TX16	AN	3.060	18"(450A)	2600	1400	3966	2130 ~ 5030
TX20	GD	1.080	20"(500A)	3500	1420	2488	2130 ~ 5030
	AP	2.070				3226	

PLATE MATERIAL	Stainless Steel, SMO254, SLX904, Titanium, Titanium-Paladium, Nickel, Nickel alloy, Hastelloy-B, Hastelloy-C
GASKET MATERIAL	NBR, EPDM, CR, Butyl, Viton, Teflon®, Silicon, Reflon®
FRAME MATERIAL	Carbon Steel, Stainless Steel, Stainless Steel Lining

ADVANTAGE OF TX SERIES

EASY-HOOK, CLIP & SOLID HONEYCOMB GASKET

Easy-Hook Type   (Patented in Korea, USA, Japan, China, Sweden)

Clip Type
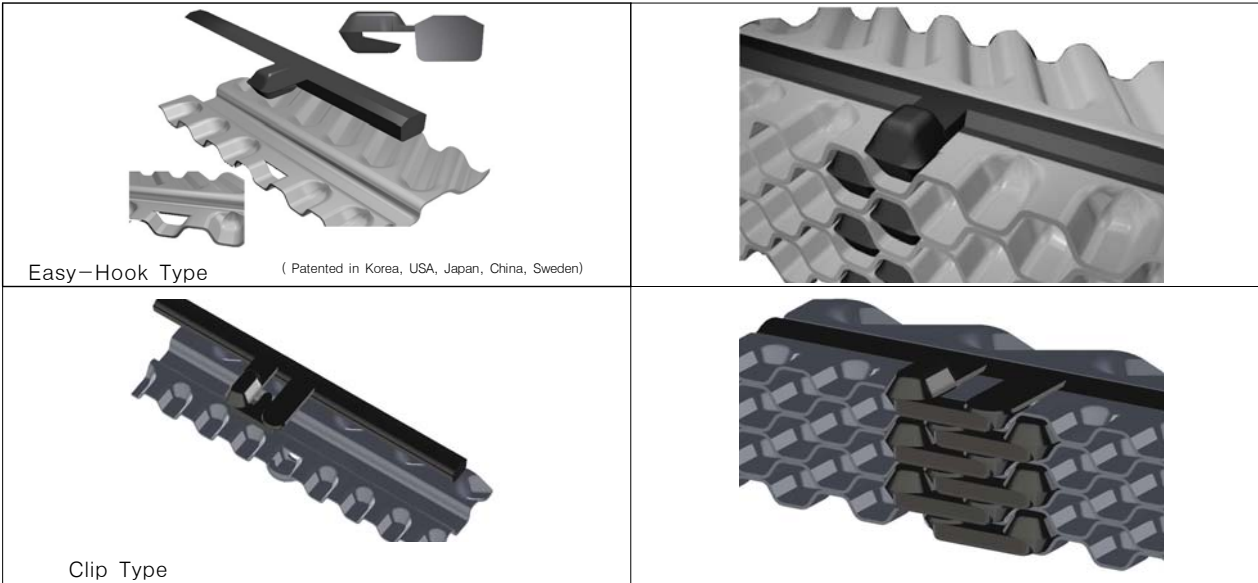
Gaskets are joined to plates by specially designed hook(Easy-Hook) or clip instead of glue. This ideal structure is very convenient and saves you the time to do cleaning and replace the gasket.

Heat Plate designed to overcome the Shear Stress and the Solid Honeycomb for Edge of plate can improve the pressure-resistant by the compressed zone of the metal to Gasket. So, It can apply to the process with pressure fluctuations and High-rise buildings.
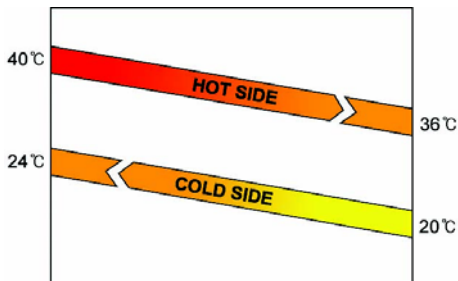
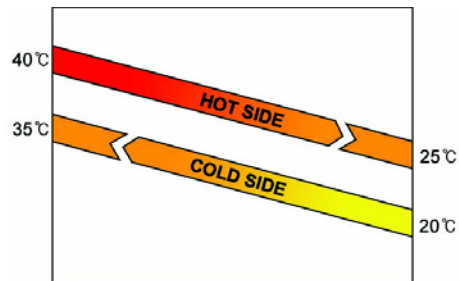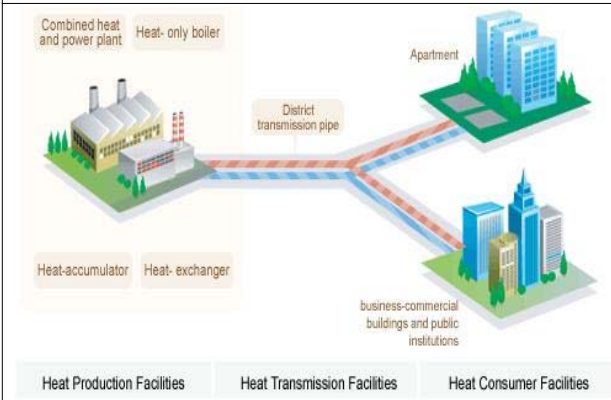## MULTIPLE LENGTH PLATES & DUAL CHEVRON ANGLE

Fig.2

Fig.3

구 분	FIG.2	FIG.3
Mean Temperature Difference	36-20=16℃	25-20=5℃
Temperature Change	40-36=4℃	40-25=15℃
Thermal Length	4/16=0.25	15/5=3.00

① Thermal Length(T.L.) of Fig.3 is twelve times bigger than T.L. of Fig.2

② PHE series are selected as AX Series(Long Length) with High θ Plate at the Big T.L. and as GD Series(Short Length) with Low θ Plate at the Small T.L.

③ Finally, PHE design is finished by finding the plate angle for the best heat exchange performance within allowed pressure drop with mixing Low θ and High θ Plate.
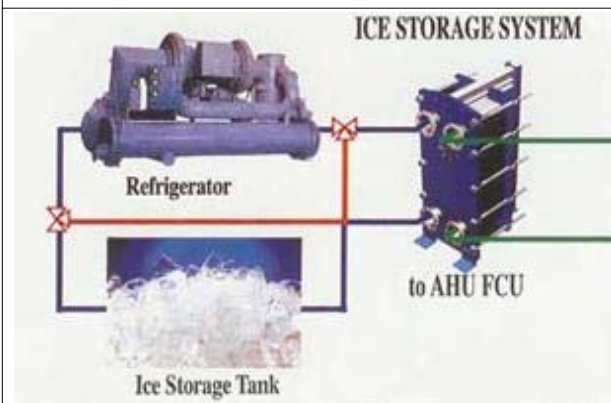
LOW θ HIGH θ
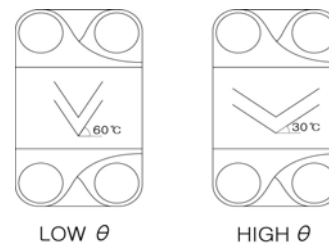
〈 Dual Chevron Angle 〉

HVAC (District Heating)	Ship Building Industry
HVAC (Ice Storage System)	Iron & Steel Industry
Chiller Free Cooling	Chemical Industry
Food Industry	Power Plant
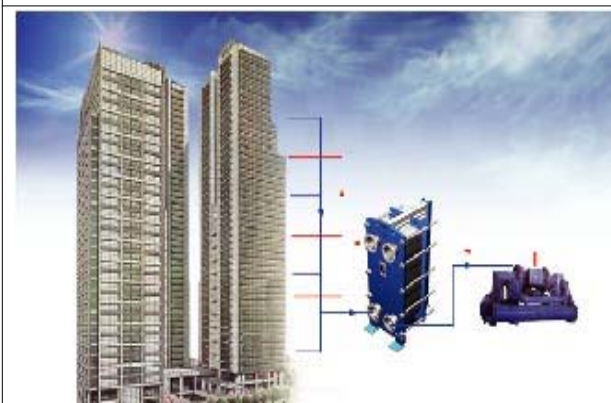
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Manufactured in South Korea

Titania Engineering Co., LTD

• Titania Engineering Co., LTD

#162 Khuat Duy Tien, Thanh Xuan, Hanoi, Vietnam
TEL: +84 2203-898-258
HOTLINE: +84 931-576-258
Email: saledept@titania.com.vn
Website: www.titania.com.vn