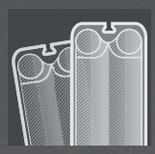
HISAKA 誠心

...WITH OUR SINCERITY "MAGOKORO"



GENERAL CATALOGUE

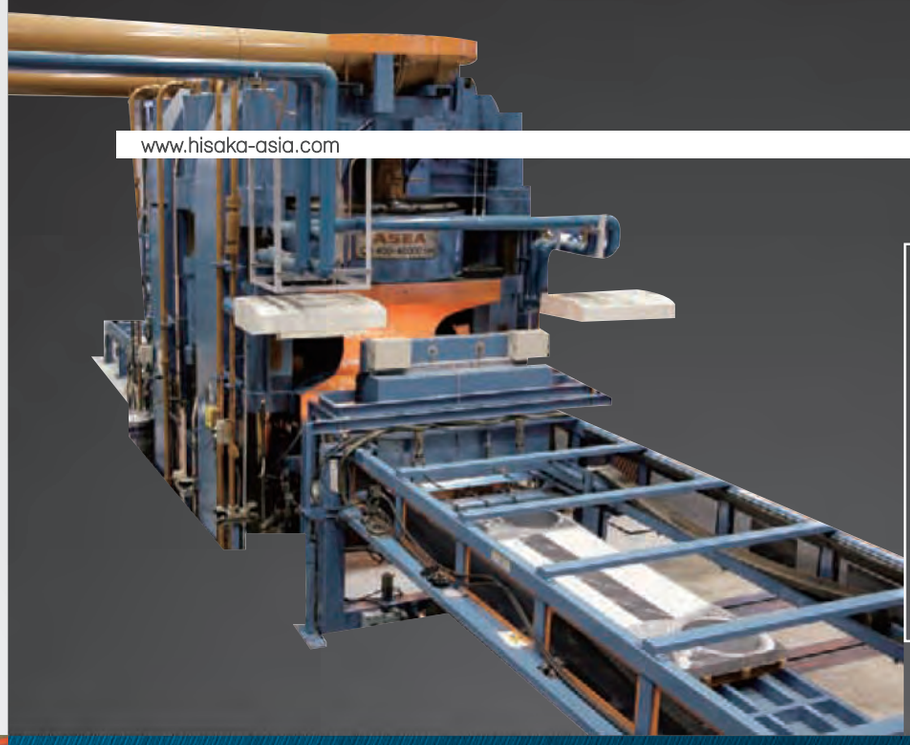
PLATE HEAT EXCHANGER

CONTENT

"WORLD LEADER IN THERMAL ENGINEERING TECHNOLOGY FROM JAPAN"

WE are HERE
HISAKA, YOUR TRUSTED ASIAN BRAND

EFFECTIVE UTILIZATION OF SOURCES, ENERGY-SAVING AND HIGH PRODUCTION EFFICIENCY. THAT'S THE HEAT EXCHANGER DIVISION'S CONCEPT OF RESEARCH AND DEVELOPMENT.



As a specialist in thermal engineering with world wide presence, our vision is to promote the rational use of thermal energy. We have been developing versatile high performance, products through the years of experience in the design and manufacturing of our Plate Heat Exchangers using innovative and leading technology.

40,000 ton Press machine

OPTIMIZING THERMAL ENGINEERING FACTS AND CHALLENGING THE LIMITS OF APPLICATIONS

Hisaka Plate Heat Exchangers are heating or cooling machines involving two flowing mediums. Its thermal principles are such as heat recovery, heat exchanging, condensation, sterilization, heat recycling, and many others. With this technology, it has been playing an important role in various industries such as chemicals, food, automotive, oil refinery, textile, marine, HVAC, power plants, steel, pulp and paper, and a lot more. In a way, most industrial processes involves heating and cooling. Hence, Hisaka plate heat exchangers assist in the majority of all industries.

MAINTAINING QUALITY IN REGARDLESS OF QUANTITY

One of the top issues revolving around plate heat exchangers are durability. The lack of durability of the plate heat exchanger will affect the performance of the entire factory and hence results in loss of productivity. Being a professional, we conform to the most stringent quality assurance programs available that are recognized by our international clients. Our products meet the highest engineering standards and hence are of the highest quality. With such parameters, we have supplied numerous plate heat exchangers to clients from all around the world in various industries.

The cutting-edge full automatic 20,000 ton Press machine

The career 20,000 ton Press machine

The latest 40,000 ton high speed automatic Press machine

PLATE HEAT EXCHANGER

EXTERNAL STRUCTURE

Plate heat exchangers are made of thin sheets of corrosion resistant metal plates such as stainless steel and titanium. These metal plates are press-formed with a corrugated pattern on the surface and is compressed and sealed with the synthetic rubber. These plates are suspended, supported, and aligned by a guide bars. The plates are also compressed by using a fixed and movable frame by using bolts. In such an arrangement, the movable frame allows the equipment to adjust (add or remove) the plates to meet the heat duty.

S-Frame
The fixed frame. Pressure retaining part to the internal pressure.

Nozzle
The connection to piping. The stud bolts are located around the connection.

Plate with Gasket
The heat transfer plates are designed with a variety of raised areas and channels to ensure strength and increase the heat transfer area.In addition, a gasket seals fluid in the channels around the plates

Base Plate
Fixed firmly the foundation by anchor bolts.

E Frame
The movable frame. Similar function to the S-Frame plate, but hung on the upper guide bar and movable.

Upper Guide-bar
Suspends the plates and EFrame plate. At the same time functions as a positioning rail.

Tightening Bolts/ Nuts
Tighten the S- and E-Frames, pressing the plates and gaskets together, to seal the fluids.

Guide Bar Support
Third leg that supports the rear ends of the top and bottom guide bars.

Lower Guide-bar
Rail that serves to position the bottom edges of the plates and E-Frame.

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Flow of Fluid and Heat Exchange Mechanism

The general set up of a plate heat exchanger is made of 2 frames (E-frame; the movable frame and S-frame; the fixed frame). In between these two frames are combinations of one D-plate, one E-plate, and a mixture of A-plates with B-plates. E-plate will be the plate in contact with E-frame, while the D plate is always be in contact with the S-Frame. The other A-plates and B-plates are arranged in such that no two same plates will appear side to side. If observed with detail, the heat transfer plates A-plate and B-plates are actually of identical patterns. In the picture, A-plate is actually turned upside-down to form B-plate, and vice versa. This is vital to ensure that each consecutive plate will have fluid that is flowing into different flow channels with the assist of the rubber gasket as shown in the picture. In addition, D-plate contains gaskets that covers both flow channels. Hence, the flowing fluid does not directly come in contact with the frames.

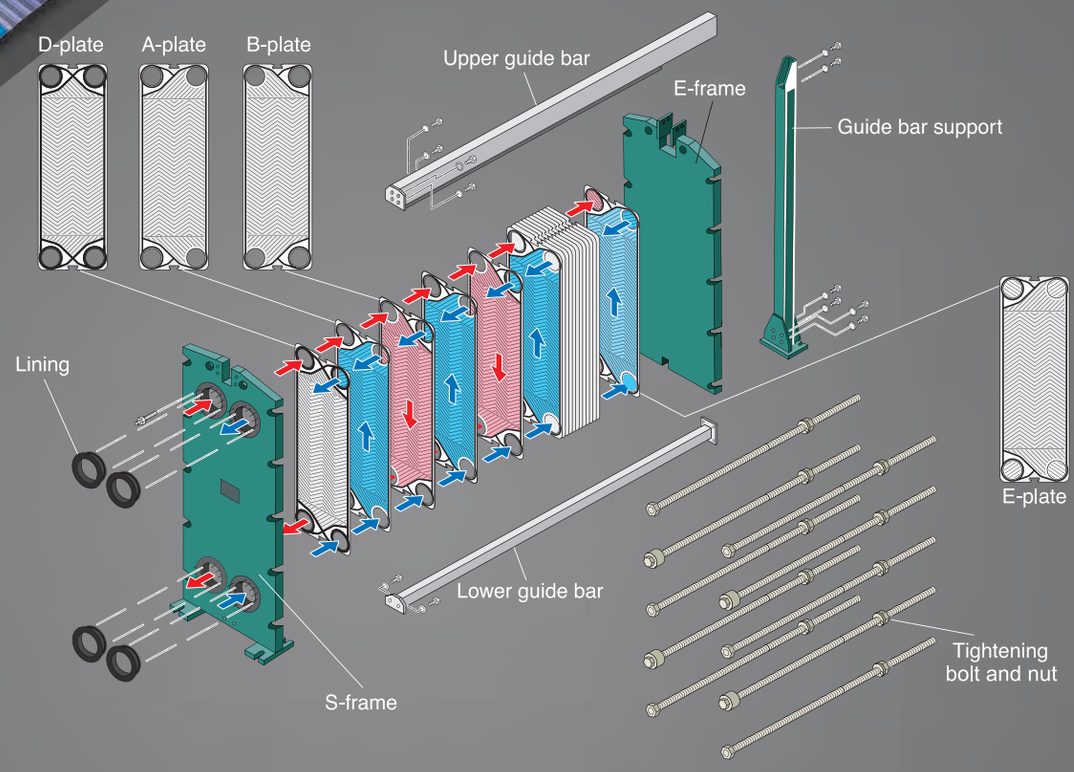
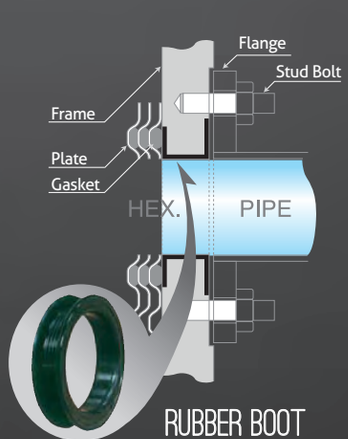


PLATE FRAME RUBBER LINED

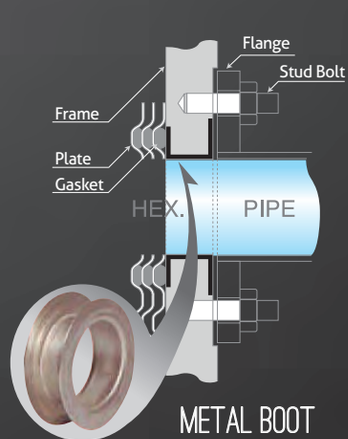
For small number plates

For large number plates (with Guide-bar Support)

FRAME BOOT



RUBBER BOOT

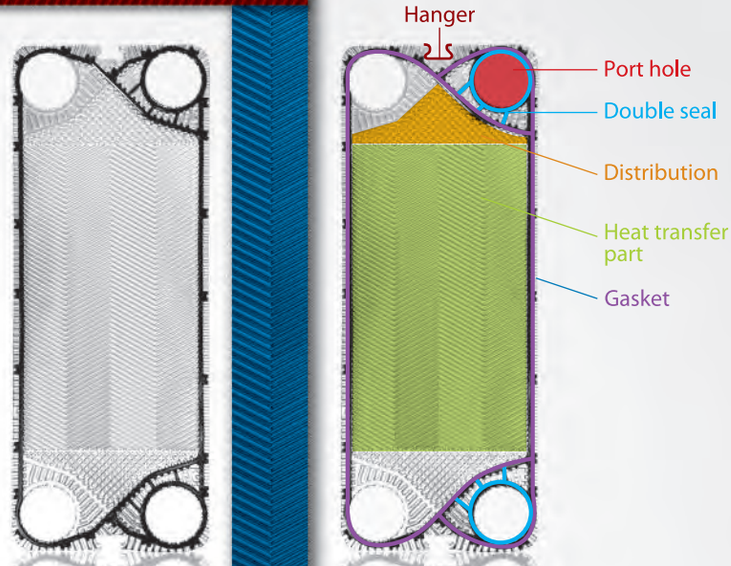


METAL BOOT

FEATURES

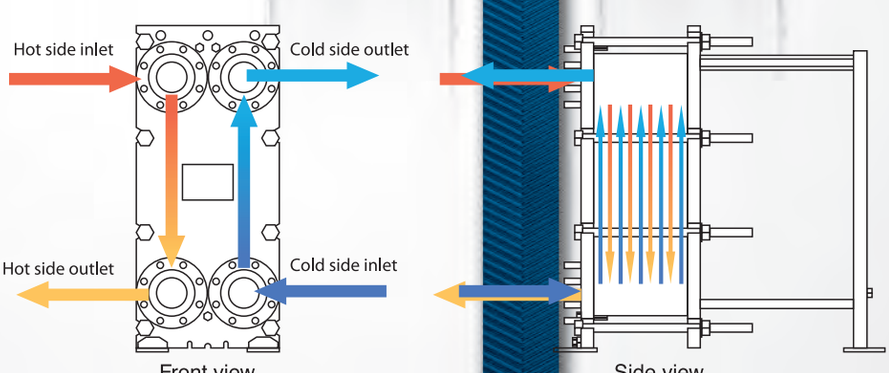
HEAT TRANSFER PLATE

Each heat transfer plate is corrugated to various patterns to increase its strength and heat transfer area. Furthermore, the corrugation creates high turbulence and thereby achieve high heat transfer coefficient. The plate is provided with passage hole on each corner. Each plate is tight-sealed with a gasket fitted in its peripheral groove.



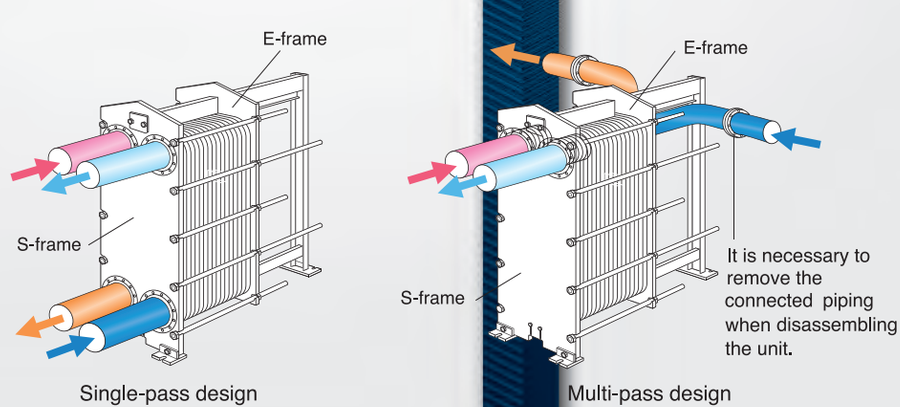
FLOW CHANNEL

The plates are divided into A-plate and B-plate, and a passage is formed between these plates. The high temperature fluid flows alternately and in the opposite direction of the other fluid. Thus high efficient transfer of heat is achieved through these plates. A-plate when reversed would become B-plate. As such only one type of plate can be used as A-plate and B-plate for most models.



PASS DESIGN

With single-pass design, all of the connections are made on the fixed frame side only. This simplifies piping work and increases layout flexibility. With a multi-pass design, connections are located on both the S-Frame (fixed-frame) and E-Frame (movable-frame) sides making it necessary to remove and adjust the piping.



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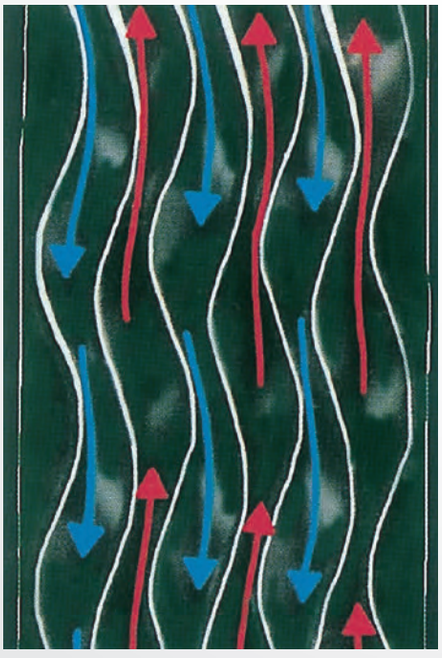
WIDE APPLICATION RANGE

Capability range	:	0.1m³/h to 5,000m3/h
Operating pressure	:	4.0MPaG max.
Operating temperature	:	180°C max.
Surface area	:	0.18m²/unit to 2,500m²/unit
Plate materials	:	Stainless steel, Titanium, High Nickel alloy, Nickel
Other materials	:	We conform to various international standards such as ASME, JIS, CE, etc.
Gasket materials	:	NBR, EPDM, IIR, FPM, Silicone, TCG, etc.

HIGH PERFORMANCE

The overall heat transfer co-efficient (U-value) ranges from 4,000 to 9,000 W/m²·°C in water application, since the plate corrugation provides high turbulent flow. This is one of the reasons why plate heat exchanger performs so high heat transfer coefficient. In addition, this turbulent flow also acts to prevent scales from the plate surface.

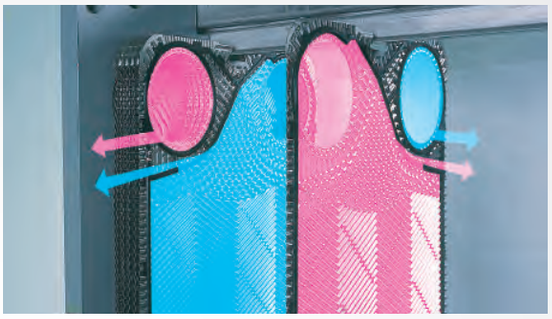


TWO FLUIDS TEMPERATURE DIFFERENCE UP TO ITS EXTREMELY CLOSE...

The construction which permits heat exchanging in perfect counter-current flow with very high heat transfer efficiency makes it possible to approach the temperature difference be- tween hot and cold fluids up to 1°C and less.

PREVENTION OF LIQUID INTER-MIXING

Special consideration is taken into the gasket so as to protect it from direct attack by liquid. Furthermore, the gasket is of double-seal type so as to permit liquid draining outside the exchanger even in a case of liquid leak caused by its deterioration.



EASY MAINTENANCE

The plate heat exchanger can be easily opened for inspection and maintenance by loosening the tightening bolts and nuts. Assembly and opening of the unit are also easily performed.

STEAM AVAILABLE AS HEAT SOURCE

The use of synthetic rubber gasket of special composition permits to use steam as heat source, i.e operating temperature range up to 180°C maximum.

LESS INSTALLATION SPACE

The lightweight and compact construction saves the installation space to 1/4 and the weight to 1/3 of shell & tube heat exchanger respectively. In addition, lightweight and thin heating plate with less liquidhold facilitates the installation work. The Plate Heat Exchanger can be disassembled for cleaning without piping work, while the shell & tube heat needs a additional space for drawing out the tube bundle.

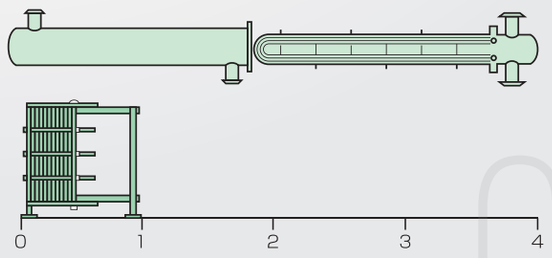


PLATE TYPE

The plates are specially selected from various patterns so as to achieve optimum area and cost effective heat exchanger for each- unit. These plates can be classified into three patterns, namely.

1. HERRINGBONE PATTERN such as LX-, UX-, RX-, WX-, and SX-series
2. WASH BOARD PATTERN such as EX-series
3. SPECIAL WAVE PATTERN such as GX-, and YX-series

1. HERRINGBONE PATTERN

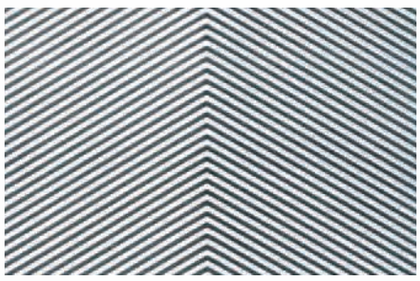
The herringbone design in LX-series has corrugations with pitch which is rough and deep. In SX-series, the pitch is fine and shallow, hence LX-series are used in application where low NTU is required, and SX-series are best suited for high NTU applica- tion. UX/RX-series is in between LX-series and SX-series.

$$NTU = \frac{\text{Hot temp in-Hot temp out}}{\text{LMTD}}$$

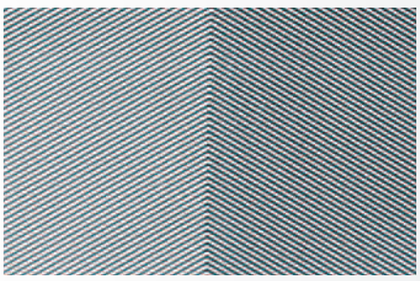
NTU : Number of heat Transfer Unit
LMTD : Logarithmic Mean Temp. Difference

NTU of 1.5 and less is generally referred to as low NTU, and 3.0 and above is considered as high NTU

LX-series

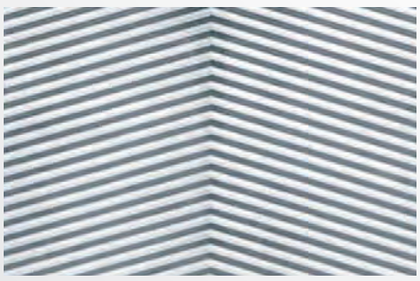


UX / RX-series



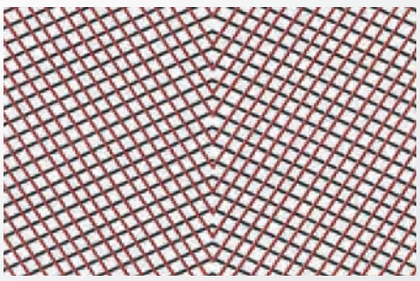
SX-series

Even in the same series, the heat transfer characteristic is different due to plate pattern angle. H plate is suited to high NTU, while L plate to low NTU. When the plates corrugated in H plate and L plate can be mixed together in a unit, intermediate ther- mal characteristics can be achieved.



H Plate

L Plate



Mixed arrangement

2. WASH BOARD PATTERN

As this type of plate gap less metal contact, it is normally ap- plied to fluids containing fibers, particles or sludge. We have EX-series.

3. SPECIAL PATTERN

YX plate is used exclusively for vapor condensation. (See Page 17)
GX plate is developed for heat transfer of fluids containing much slurry or high viscosity liquids. (See Page 18)

GASKET

1. VERSATILE GASKET

HISAKA Plate Heat Exchanger is used in almost all process industries, as such the gaskets are specifically selected based on the operating condition. A wide range of gaskets are available such as NBR, EPDM, IIR, FPM, Silicon, etc.

• Special Hisaka (S-1) glue shall be applied for bonding

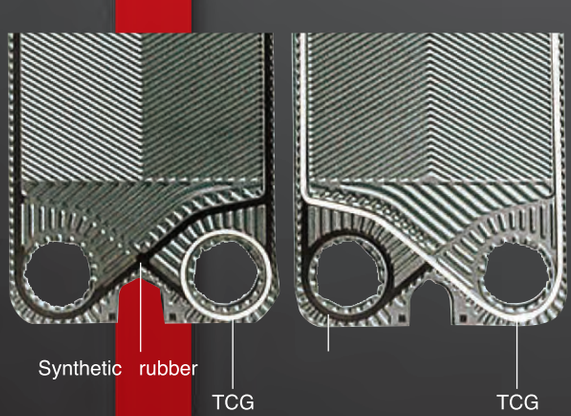
2. GLUE-FREE GASKET SLIT-IN TYPE

These plate gaskets do not need adhesive. The slit-in gasket is especially recommended for those applications where fre- quent replacement of the gasket is required. Further, without the adhesives, adhesive odor is reduced. This slit-in type gasket is suitable for such as water treatment Food application.

3. PTFE CUSHION GASKET (TCG)

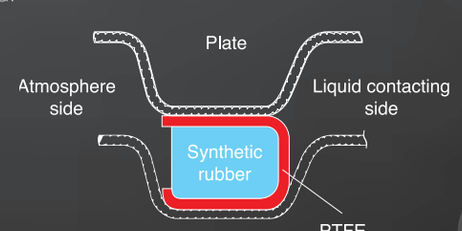
Through our own development, HISAKA has pioneered PTFE Cushion Gaskets for the Plate Heat Exchanger. It is normally used in applications where conventional synthetic rubber would have limitations due to the corrosiveness of the fluid being handled. With this new development, the Plate Heat Exchangers can be applied in much wider field than before due to the chemical resistance and the durability of PTFE.

• Special double adhesive tape shall be applied for bonding



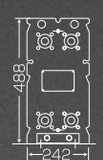
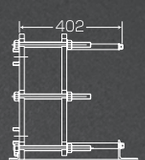
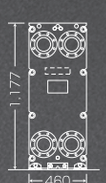
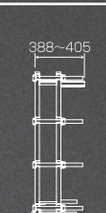
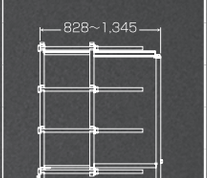
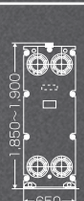
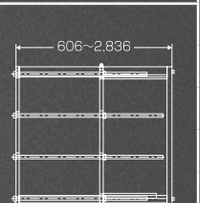
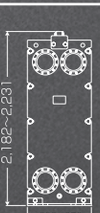
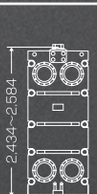
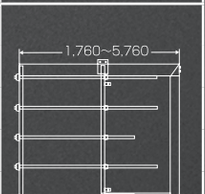
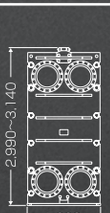
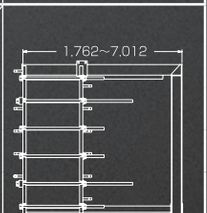
Features

1. Excellent chemical resistance against most chemical especially organic solvent.
2. Due to the elastic core of the TCG gasket, it does not require strong tightening torque during the assembly of the unit. Thus re- ducing the risks of plate deformation due to over tightening.
3. TCG gasket can be used for one side only, if the non-corrosive fluid is running in the other side where conventional gasket can be used.



⚠ CAUTION: DO NOT BURN THIS GASKET. UPON BURNING THE GASKET, POISONOUS GAS WILL BE RELEASED.

PLATE HEX VARIATION

RX	SPECIFICATION		STANDARD FRAME		
			HEIGHT & WIDTH	NJ-TYPE	NP-TYPE
RX-00	MAX FLOW RATE	~20m³/h			
	MAX PRESSURE	2.0MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	1m²			
	PORTHOLE DIAMETER	35mm			
	CONNECTION DIAMETER	20A			
RX-10	MAX FLOW RATE	197m³/h			
	MAX PRESSURE	2.7MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	30m²			
	PORTHOLE DIAMETER	100mm			
	CONNECTION DIAMETER	100A			
RX-30	MAX FLOW RATE	445m³/h			
	MAX PRESSURE	1.8MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	200m²			
	PORTHOLE DIAMETER	150mm			
	CONNECTION DIAMETER	150A			
RX-50	MAX FLOW RATE	923m³/h			
	MAX PRESSURE	2.1MPaG			
	MAX TEMPERATURE	180°C			
	MAX SURFACE AREA	500m²			
	PORTHOLE DIAMETER	216mm			
	CONNECTION DIAMETER	200A			
RX-70	MAX FLOW RATE	1,286m³/h			
	MAX PRESSURE	1.3MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	500m²			
	PORTHOLE DIAMETER	255mm			
	CONNECTION DIAMETER	250A			
RX-90	MAX FLOW RATE	3,167m³/h			
	MAX PRESSURE	1.6MPaG			
	MAX TEMPERATURE	130°C			
	MAX SURFACE AREA	1,600m²			
	PORTHOLE DIAMETER	400mm			
	CONNECTION DIAMETER	400A			

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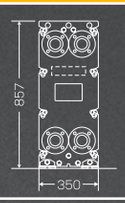
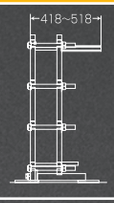
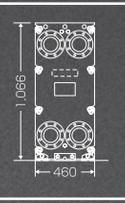
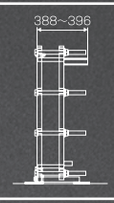
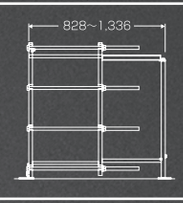
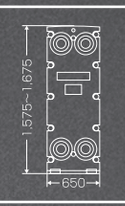
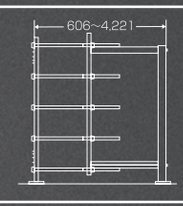
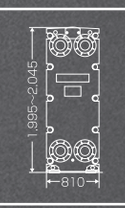
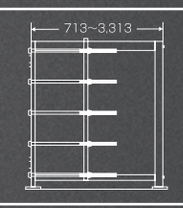
LX	SPECIFICATION		STANDARD FRAME		
			HEIGHT & WIDTH	NJ-TYPE	NP-TYPE
LX-00	MAX FLOW RATE	69m³/h			
	MAX PRESSURE	1.8MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	5m²			
	PORTHOLE DIAMETER	59mm			
	CONNECTION DIAMETER	50A			
LX-10	MAX FLOW RATE	197m³/h			
	MAX PRESSURE	1.6MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	15m²			
	PORTHOLE DIAMETER	100mm			
	CONNECTION DIAMETER	100A			
LX-30	MAX FLOW RATE	481m³/h			
	MAX PRESSURE	1.25MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	100m²			
	PORTHOLE DIAMETER	156mm			
	CONNECTION DIAMETER	150A			
LX-50	MAX FLOW RATE	791m³/h			
	MAX PRESSURE	1.25MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	200m²			
	PORTHOLE DIAMETER	200mm			
	CONNECTION DIAMETER	200A			

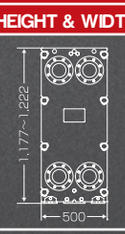
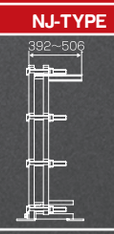
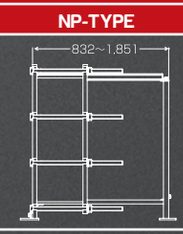
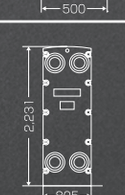
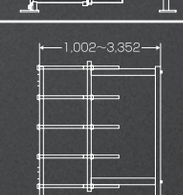
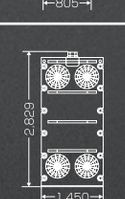
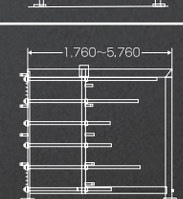
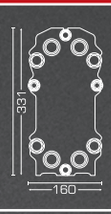
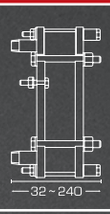
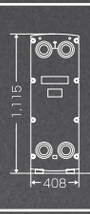
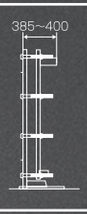
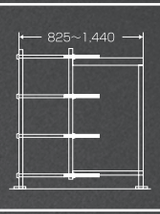
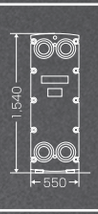
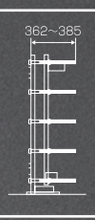
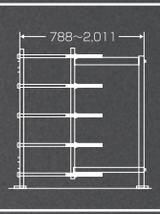
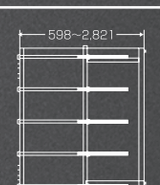
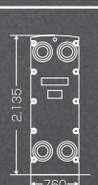
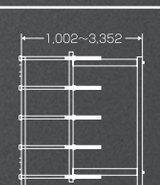
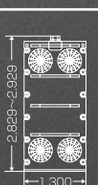
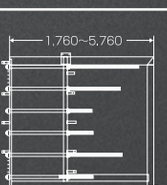
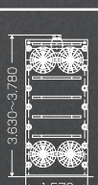
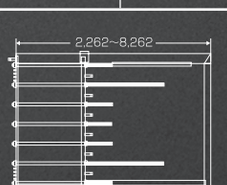
WX	SPECIFICATION		STANDARD FRAME		
			HEIGHT & WIDTH	NJ-TYPE	NP-TYPE
WX-10	MAX FLOW RATE	209m³/h			
	MAX PRESSURE	4.8MPaG			
	MAX TEMPERATURE	180°C			
	MAX SURFACE AREA	30m²			
	PORTHOLE DIAMETER	103mm			
	CONNECTION DIAMETER	100A			
WX-50	MAX FLOW RATE	791m³/h			
	MAX PRESSURE	4.1MPaG			
	MAX TEMPERATURE	180°C			
	MAX SURFACE AREA	200m²			
	PORTHOLE DIAMETER	200mm			
	CONNECTION DIAMETER	200A			
WX-90	MAX FLOW RATE	2,208m³/h			
	MAX PRESSURE	2.3MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	800m²			
	PORTHOLE DIAMETER	334mm			
	CONNECTION DIAMETER	350A			

PLATE HEX VARIATION

UX	SPECIFICATION		STANDARD FRAME		
			HEIGHT & WIDTH	NJ-TYPE	NP-TYPE
UX-005	MAX FLOW RATE	15m³/h			
	MAX PRESSURE	0.5MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	0828m²			
	PLATE THICKNESS	0.5mm			
	CONNECTION DIAMETER	20A			
UX-10	MAX FLOW RATE	97m³/h			
	MAX PRESSURE	2.5MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	30m²			
	PORTHOLE DIAMETER	70mm			
	CONNECTION DIAMETER	50A			
UX-20	MAX FLOW RATE	197m³/h			
	MAX PRESSURE	2.0MPaG			
	MAX TEMPERATURE	180°C			
	MAX SURFACE AREA	60m²			
	PORTHOLE DIAMETER	100mm			
	CONNECTION DIAMETER	100A			
UX-30	MAX FLOW RATE	285m³/h			
	MAX PRESSURE	2.2MPaG			
	MAX TEMPERATURE	180°C			
	MAX SURFACE AREA	200m²			
	PORTHOLE DIAMETER	120mm			
	CONNECTION DIAMETER	100A			
UX-40	MAX FLOW RATE	714m³/h			
	MAX PRESSURE	2.0MPaG			
	MAX TEMPERATURE	180°C			
	MAX SURFACE AREA	200m²			
	PORTHOLE DIAMETER	190mm			
	CONNECTION DIAMETER	200A			
UX-90	MAX FLOW RATE	2,314m³/h			
	MAX PRESSURE	1.7MPaG			
	MAX TEMPERATURE	150°C			
	MAX SURFACE AREA	800m²			
	PORTHOLE DIAMETER	342mm			
	CONNECTION DIAMETER	350A			
UX-100	MAX FLOW RATE	4,948m³/h			
	MAX PRESSURE	1.3MPaG			
	MAX TEMPERATURE	100°C			
	MAX SURFACE AREA	1,600m²			
	PORTHOLE DIAMETER	500mm			
	CONNECTION DIAMETER	500A			
UX-130	MAX FLOW RATE	4,948m³/h			
	MAX PRESSURE	1.3MPaG			
	MAX TEMPERATURE	100°C			
	MAX SURFACE AREA	1,600m²			
	PORTHOLE DIAMETER	500mm			
	CONNECTION DIAMETER	500A			

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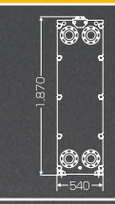
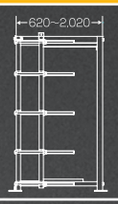
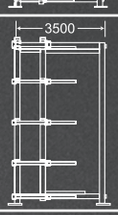
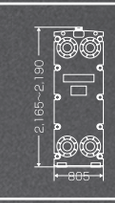
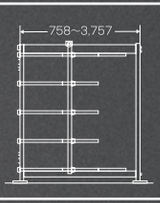
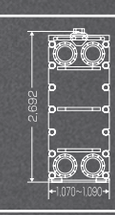
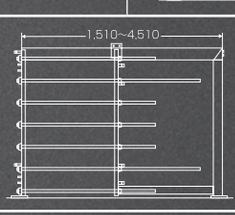
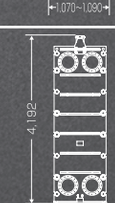
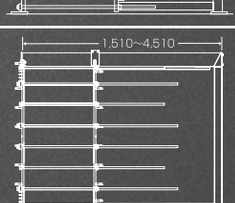
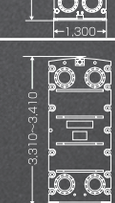
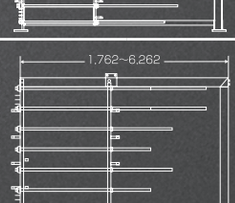
SX	SPECIFICATION		STANDARD FRAME		
			HEIGHT & WIDTH	NJ-TYPE	NP-TYPE
SX-20	MAX FLOW RATE	220m³/h			
	MAX PRESSURE	3.0MPaG			
	MAX TEMPERATURE	60°C			
	MAX SURFACE AREA	200m²			
	PORTHOLE DIAMETER	105mm			
	CONNECTION DIAMETER	100A			
SX-30	MAX FLOW RATE	445m³/h			
	MAX PRESSURE	3.0MPaG			
	MAX TEMPERATURE	60°C			
	MAX SURFACE AREA	600m²			
	PORTHOLE DIAMETER	150mm			
	CONNECTION DIAMETER	150A			
SX-40	MAX FLOW RATE	940m³/h			
	MAX PRESSURE	2.4MPaG			
	MAX TEMPERATURE	100°C			
	MAX SURFACE AREA	500m²			
	PORTHOLE DIAMETER	218mm			
	CONNECTION DIAMETER	200A			
SX-70	MAX FLOW RATE	1,337m³/h			
	MAX PRESSURE	3.0MPaG			
	MAX TEMPERATURE	60°C			
	MAX SURFACE AREA	800m²			
	PORTHOLE DIAMETER	260mm			
	CONNECTION DIAMETER	250A			
SX-80	MAX FLOW RATE	2,424m³/h			
	MAX PRESSURE	2.0MPaG			
	MAX TEMPERATURE	180°C			
	MAX SURFACE AREA	1,600m²			
	PORTHOLE DIAMETER	350mm			
	CONNECTION DIAMETER	350A			
SX-90	MAX FLOW RATE	2,565m³/h			
	MAX PRESSURE	2.0MPaG			
	MAX TEMPERATURE	130°C			
	MAX SURFACE AREA	1,600m²			
	PORTHOLE DIAMETER	360mm			
	CONNECTION DIAMETER	350A			

PLATE HEX MODEL NAMING

RX-146A-TNHJR-24

PLATE TYPE
LX, UX, RX, SX, EX, GX, YX

PLATE SIZE
00 (Small) • 10 (Large)

PLATE PATTERN
1 ~ 6 Single pattern plate arrangement
7 ~ 9 Mix with 2 different pattern plates arrangment (Common name: MIX)

PLATE THICKNESS
5 0.5mm
6 0.6mm
8 0.8mm
0 1.0mm

HOW TO FIX GASKET
A Slit in Type (Glue Free)
B Slit in Type (Glued)
None Glued Type

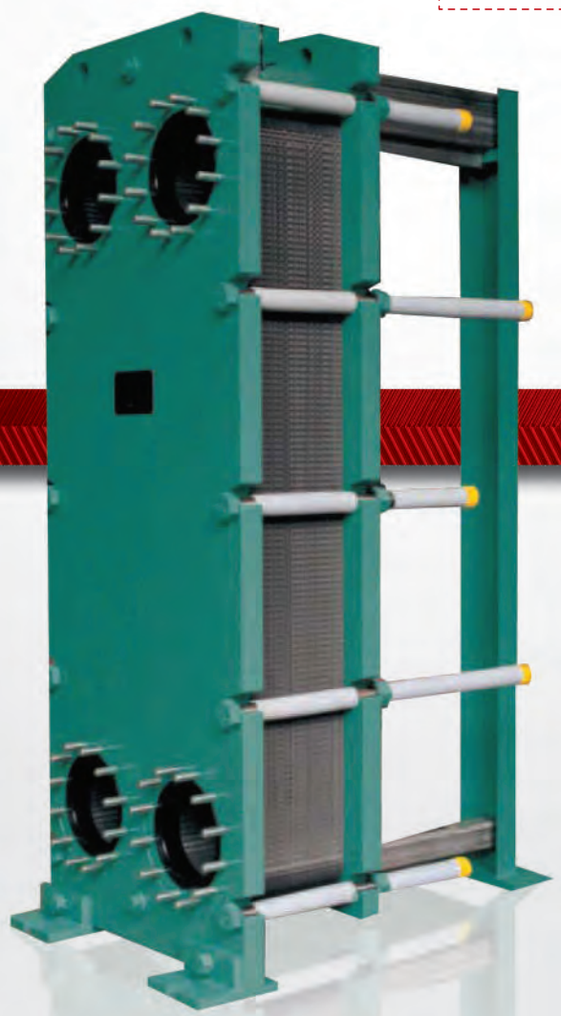
NUMBER OF PLATES

OTHER SYMBOLS
R Steam Heater
L With L Frame

STANDARD FRAME TYPE
J For small size frame and fewer no. of frames
P For common use other than the above
Add "M" for Marine use case (example: JM, PM)

MAX OPERATING PRESSURE
None : Low pressure
H : Normal pressure
U : High Pressure
S : Very High Pressure

NOZZLE
N without nozzle (synthetic Rubber connection)
TN·KN without nozzle (Metal connection)
None with Nozzle (UX-01, only UX-005 Type)



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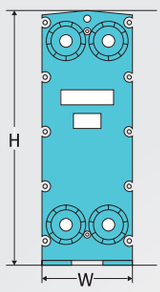
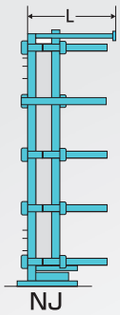
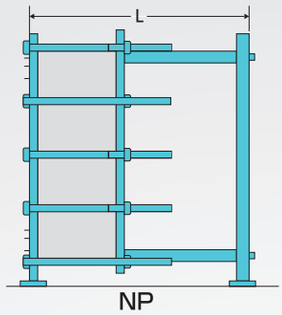




NJ



NP

MODEL	HEIGHT (mm)	WIDTH (mm)	HEAT TRANSFER SURFACE AREA											
			1m²	5m²	10m²	15m²	30m²	60m²	100m²	200m²	500m²	800m²	1,200m²	1,600m²
RX-00	488	242	400											
			50											
RX-10	1,177	460	383	383	388	388	1,028							
			280	320	360	400	540							
RX-30	1,900	650				600	700	1,000	1,400	2,400				
						750	960	1,200	1,600	2,670				
RX-50	2,231	950					913	1,113	1,313	2,113	3,513			
							1,570	1,870	2,280	3,280	5,730			
RX-70	2,584	900						1,760	1,760	2,510	4,510			
								2,900	3,100	4,200	8,000			
RX-90	3,140	1,390							1,762	2,012	3,262	4,262	5,762	7,012
									5,510	6,590	9,840	13,210	18,670	23,130
LX-00	857	350	418	518										
			170	210										
LX-10	1,066	460	400	400	828	1,028								
			250	300	380	450								
LX-30	1,675	650			621	821	1,221	2,221	2,621					
					1,100	1,200	1,400	2,000	2,300					
LX-50	2,045	810					913	1,313	1,513	2,313				
							2,150	2,850	3,110	4,520				
SX-20	1,870	540				620	820	1,020	1,220	2,020				
						950	1,050	1,240	1,510	2,220				
SX-30	2,683	684					713	913	1,113	1,713	2,913	3,713		
							1,670	1,860	2,120	2,800	4,970	6,170		
SX-40	2,190	805						958	1,158	1,758	3,557			
								1,850	2,230	3,240	6,520			
SX-70	2,692	1,090									2,510	3,510		
											6,880	9,780		
SX-80	4,192	1,300							1,510	1,760	2,510	3,010	3,760	4,510
									4,000	4,500	6,100	7,500	9,500	11,600
SX-90	3,410	1,290									3,000	4,000	5,300	6,300
											8,800	11,200	15,300	18,700
UX-10	1,115	408	383	383	825	825	1,025							
			220	260	310	360	510							
UX-20	1,540	550	362	362	362	788	988	1,588						
			460	500	560	650	820	1,190						
UX-30	1,891	610				598	798	998	1,398	2,398				
						800	960	1,290	1,740	2,870				
UX-40	2,135	760							1,602	2,602				
									2,540	3,830				
UX-90	2,929	1,300									3,300	4,600		
											7,100	10,000		
UX-100	3,780	1,570									2,900	3,800	5,100	6,300
											11,000	13,000	16,000	19,000
UX-130	4,300	1,570									2,500	3,000	3,800	4,500
											12,000	14,000	17,000	21,000
WX-10	1,222	500		392	1,032	1,133	1,833							
				420	500	620	910							
WX-50	2,231	805							1,602	2,602				
									2,540	3,830				
WX-90	2,829	1,450									3,300	4,600		
											7,100	10,000		
CX-10	895	346	325	325	635	835								
			160	200	260	310								
GX-20	1,593	580	933	933	933	1,133	1,933							
			520	640	830	1,000	1,460							
EX-15	1,445	550	362	362	788	988	1,188	1,988						
			440	530	660	770	1,100	1,600						
EX-11	2,100	760					1,197	1,397	1,797					
							1,900	2,230	2,970					

All figures are approximate. For details, please contact us.

SPECIAL TYPE OF PLATE (I) SEMI WELDED PLATE

FEATURES

High heat transfer coefficient owing to uniform distribution of flow to entire heat transfer is by special plate pattern. A couple of plates are laser welded with o-ring at port holes between the plates, thus semi-welded plate heat exchanger can be used for higher pressure compare to conventional Plate Heat Exchanger.

WX-10

WX-53

WX-90

ADVANTAGES

1. High pressure resistance is about 2 to 3 times higher than all gasket type heat exchanger.
2. Save maintenance cost.
3. Chemical resistance TCG o-ring and synthetic rubber are selectively used.
4. Nozzle pitch dimensions of semi-welded plate heat exchanger are same to those of following plate heat exchangers.
   WX-10 and RX-10
   WX-50 and RX-50
   WX-90 and UX-90
   Therefore, RX-10, RX-50, UX-90 can be replaced to WX series without changing location of connection pipes.
5. Different from full welded plate heat exchanger, Semi-welded plate heat exchanger can be easily added plates to increase capacity.
6. Semi-welded plates heat exchanger can be disassembled and done maintenance for the future.

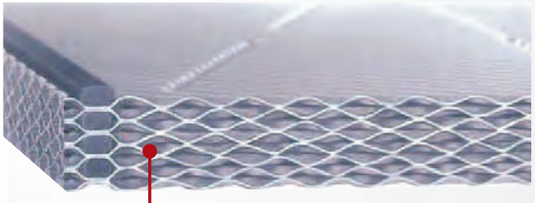
APPLICATION

- BTX Recovering Process in COG PlanT
- Sulfuric Acid Process
- Quench Water Cooler in Ethylene Plant
- Pure Water Heater in Clean Room
- Oil and Fat

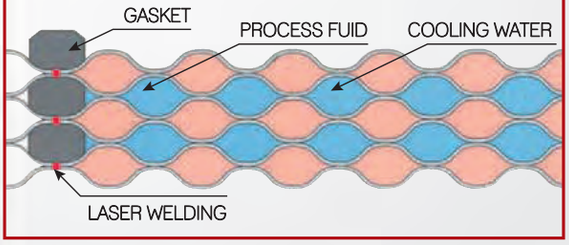
SPECIFICATION

Max flow rate	:	2300m³/h
Operating pressure	:	4.0 MPaG
Max operating temperature	:	180°C
Connection Diameter	:	100mm(4")/200mm(8")/ 350mm(14")
Plate material	:	316LSS, Titanium, High Nickel alloy etc.
Gasket material	:	EPDM, TCG, FPM etc.

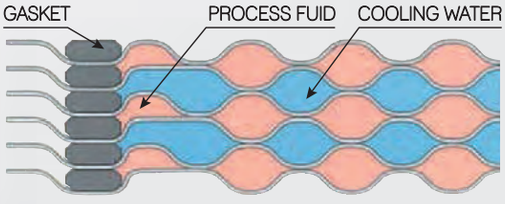
CONSTRUCTON of SEMI WELDED PLATE



SEMI WELDED TYPE HEAT EXCHANGER



ALL GASKET TYPE HEAT EXCHANGER



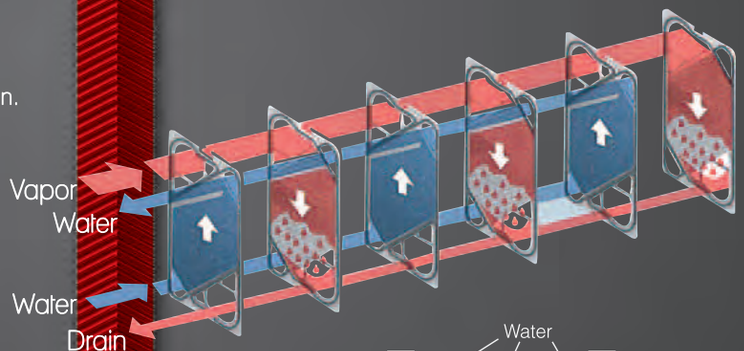
SPECIAL TYPE OF PLATE (II) CONDENSING PLATE

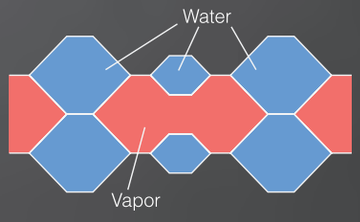
FEATURES

YX type heat exchanger is specially designed for condenser to provide high condensing performance in characteristic formed various material plates.
This characteristic YX shape is enable to be light and compact construction and it has the heat transfer performance of 2 to 3 times as high as conventional S&T heat exchanger.

ADVANTAGES

1. Heat Transfer coefficient is about 2 times as high as that of shell & tube heat exchager. The condensing surface is always secured and the heat transfer coefficient is improved because condensate is immediately drained out.
2. To achieve much less vapor pressure drop than the conventional Plate type Heat Exchanger, special consideration of plate characteristic is taken in contribution.
3. Cooling water consumption is about half of S&T heat exchanger
4. The use of TCG gasket is selectively used and it expands the application to wide field.
5. Easy change of condensing capacity by increase or reducing the number of plates.
6. Because of inlet and out let connections at the same side, YX type can be applied not only an total condenser but also to partial condenser.



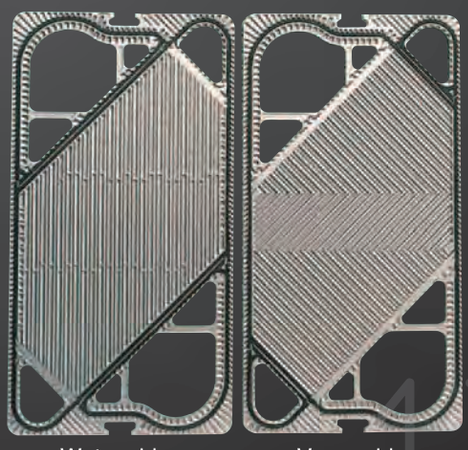


APPLICATION

- Wort Pan Condenser in Beer Process
- Vent Gas Condenser
- CI2N2NH3 Gas Condenser
- Barometric Condenser

SPECIFICATION

Max. flow rate	:	30,000m³/h
Operating pressure	:	-0.097MPa ~ 0.6MPaG
Max operating temperature	:	180°C
Plate material	:	316SS, Titanium etc.
Gasket material	:	NBR, EPDM, IIR, TCG etc.



Water side Vapor side

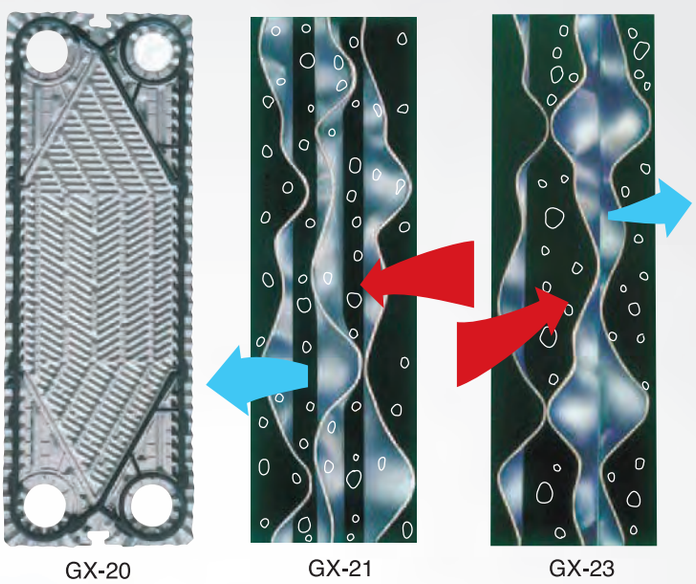
SPECIAL TYPE OF PLATE (III) MULTI GAP PLATE

FEATURES

GX-21 provides 10mm channel space both hot and cold sides, so that heat recovery can be performed between hot and cold slurry. GX-22 plate is made by reversing and upside downGX-21 plates.

Mixed plate arrangement of GX-21 and GX-22 named GX-23. It gives the widest channel spacing (20mm) at one side, which is available for large size particles.

GX plates have wider depth, larger corrugation pitch and less metal contact points, comparing to conventional plates.



GX-20 GX-21 GX-23

Combinationof GX-21 & GX-22 a view of the cross section from top

ADVANTAGES

1. Easy to flow throughout between plates.
2. GX series provides the widest channel spacing.
3. Mixed plates arrangement gives three types of channel spacing.
4. It is better performance for slurry, sludge and crystal containing liquid.
5. Electrolytic polishing selectively used for food application.

APPLICATION

- Slurry in PVC, Latex
- Sludge quenching oil
- Plating solution
- Crystal (sodium hypo-chloride, sodium alminate, etc.)
- Glucose
- Fresh juice
- Waste water

SPECIFICATION

Max flow rate	:	900m³/h
Operating pressure	:	0.7 MPaG
Max operating temperature	:	130°C
Connection Diameter	:	100mm(4")/200mm(8")
Plate material	:	316SS, Titanium etc
Gasket material	:	NBR, EPDM etc.

MAINTENANCE

In order to extend the lifetime of the plate heat exchanger, it is important to watch changes in conditions. Frequently observed faults and causes are summarized below. If those faults are detected, please contact us and inform manufacturing number of the unit.

FAULTS

DECREASING OF PERFORMANCE

HEAT TRANSFER PERFORMANCE

It is necessary to clean the plates and remove scale, because of supposing scaling on the heat transfer surface.

FLOW PERFORMANCE

Clogging of the port holes inlet and/or scale deposition on the heat transfer surfaces may be supposed. It is necessary to clean the unit and remove scale.

LEAKAGE OF FLUIDS

FROM PLATE PACK

Insufficient tightening the plate pack, damage or deterioration of gaskets, plate gasket groove or double seal area corrosion, wrong plate arrangement, foreign object caught between gasket seal surfaces, gasket twisting or overlapping from the groove may be the supposed. Correct each fault or replace gaskets and/or plate.

FROM THE S-FRAME

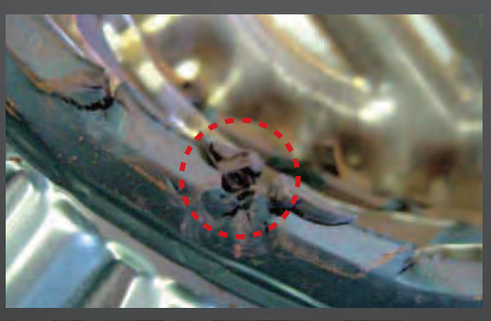
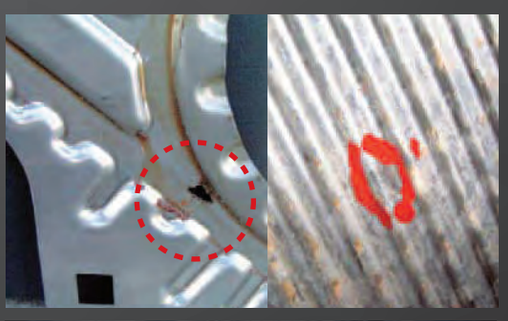
The D-plate gasket, rubber boots, D-plate or S-nozzle may be damaged. Replace the damaged part.

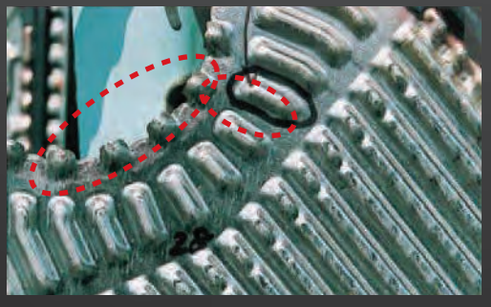
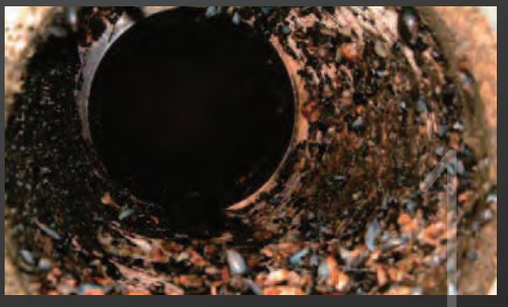
FROM THE S-FRAME

The E-nozzle gasket, E-nozzle, rubber boots, or E-plate may be damaged. Replace the damaged part.

INTERMIXING OF TWO MEDIA

It is possible that corrosion or damage to the intermediate plate has penetrated the plate. Replace the damaged plate.

APPLICATION

CHEMICAL | Caustic Soda, Fertilizer, Petrochemical, Oil Refinery, Oil & Fat, Pharmaceutical

HVAC | Air-conditioning, Tap Water Heating

STEEL MILL | Blast Furnace, Continuous Casting, C.O.G., Plating & Galvanizing

SEMICONDUCTOR | Ultra pure water production facility, clean room

HISAKA 誠心 ...WITH OUR SINCERITY "MAGOKORO"

PULP & PAPER

White water cooling, white liquor cooling, aqueous chlorine dioxide heating/cooling, black liquor heating/cooling, waste water treatment facilities

SHIP

Sea Water, River Water, Power Station, Co-Generation, Marine and many others

FOOD

Milk, Beer, Sugar, Soft drink, Sauce, Wine

JUMBO UNITS

Central Cooling, CO2 Recovery, Condensate Cooler

POWER PLANT

Turbine Oil Cooler, Lube Oil Cooler, Vacuum Pumpseal cooler

WEB SIMULATOR

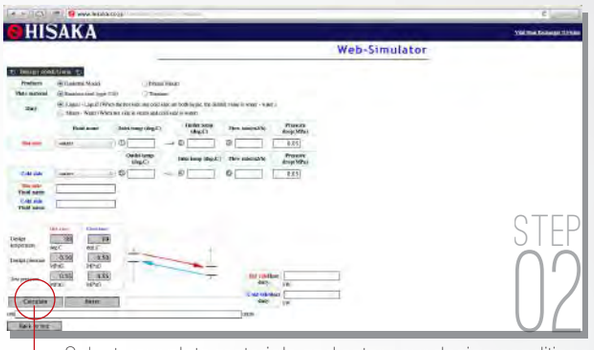
Simulation of Plate Heat Exchanger Now Possible on the Web

The world's first website for simulating Plate Heat Exchanger is now launched on the Internet. By accessing the following URL and entering your design requirements according to the instructions on the screen, you can get your own plate heat exchanger. In addition, you will be able to download the specification with outline drawing for installation work. The most appropriate simulation of plate heat exchanger is possible 24-hours a day anytime, anywhere according to your convenience. http://www.hisaka.co.jp/english/phe/

Top screen on the website

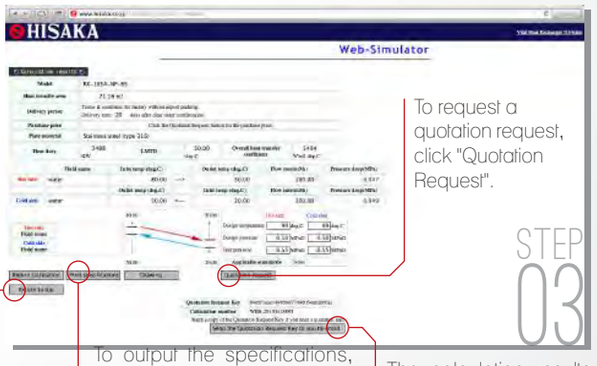
Click here for a direct link.

"DesignconditionsInput"Screen



Select your plate materials and enter your design conditions in the empty fields, and click "Calculate".

"Calculation Results"



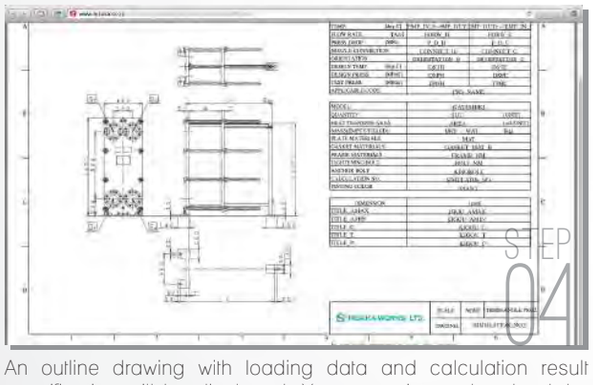
To request a quotation request, click "Quotation Request".

To output the specifications, click "Print Specifications".

When you do not need a quotation, click "Return to TOP" to exit.

The calculation results are automatically saved for one month. When you need a quotation later (within the one-month period), click "Send the Quotation Request Key to you by email. " so that the Quotation Request Key is sent to you.

"Specification"Screen



An outline drawing with loading data and calculation result specification will be displayed. You can print or download the specifications.

Please also use the special fax form.

If it is necessary to help for selection of Plate Heat Exchanger, please fax the form below with your design conditions. Hisaka shall reply to you. A more suitable design can be offered, if additional information such as plate material and gasket material etc. can be provided. In addition, please feel free to contact our nearest agents or sales representatives of Hisaka if you have any questions.

1. Heat duty		kW
	Hot Side	Cold Side
2. Fluid name		
3. Inlet temperature	°C	°C
4. Outlet temperature	°C	°C
5. Flow Rate	m³/h	m³/h
6. Pressure Drop	MPa or less	MPa or less
7. Operating Pressure	MPaG	MPaG
8. Special Notes		

TEL:
+603
5880 4185

FAX:
+603
8081 7185

NETWORK

HISAKA is a world leader in the production of Plate Heat Exchanger and has extensive experience in licensing its technology, mainly to Europe and North America. We have exported to over 70 countries worldwide, including Korea and China, and have earned a very good reputation from users in various countries. We have established a global service agent network and we are committed to respond to the confidence placed in our products.
We are also committed to the continued development of our technologies as the name of "HISAKA" with Plate Heat Exchangers.

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- HISAKAWORKS (THAILAND), RAYONG SERVICE CENTER

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- PT HISAKA WORKS INDONESIA, JAKARTA

VIETNAM (REPRESENTATIVE OFFICE)
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- HISAPINO, MANILA

GENERAL CATALOGUE

PLATE HEAT EXCHANGER

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