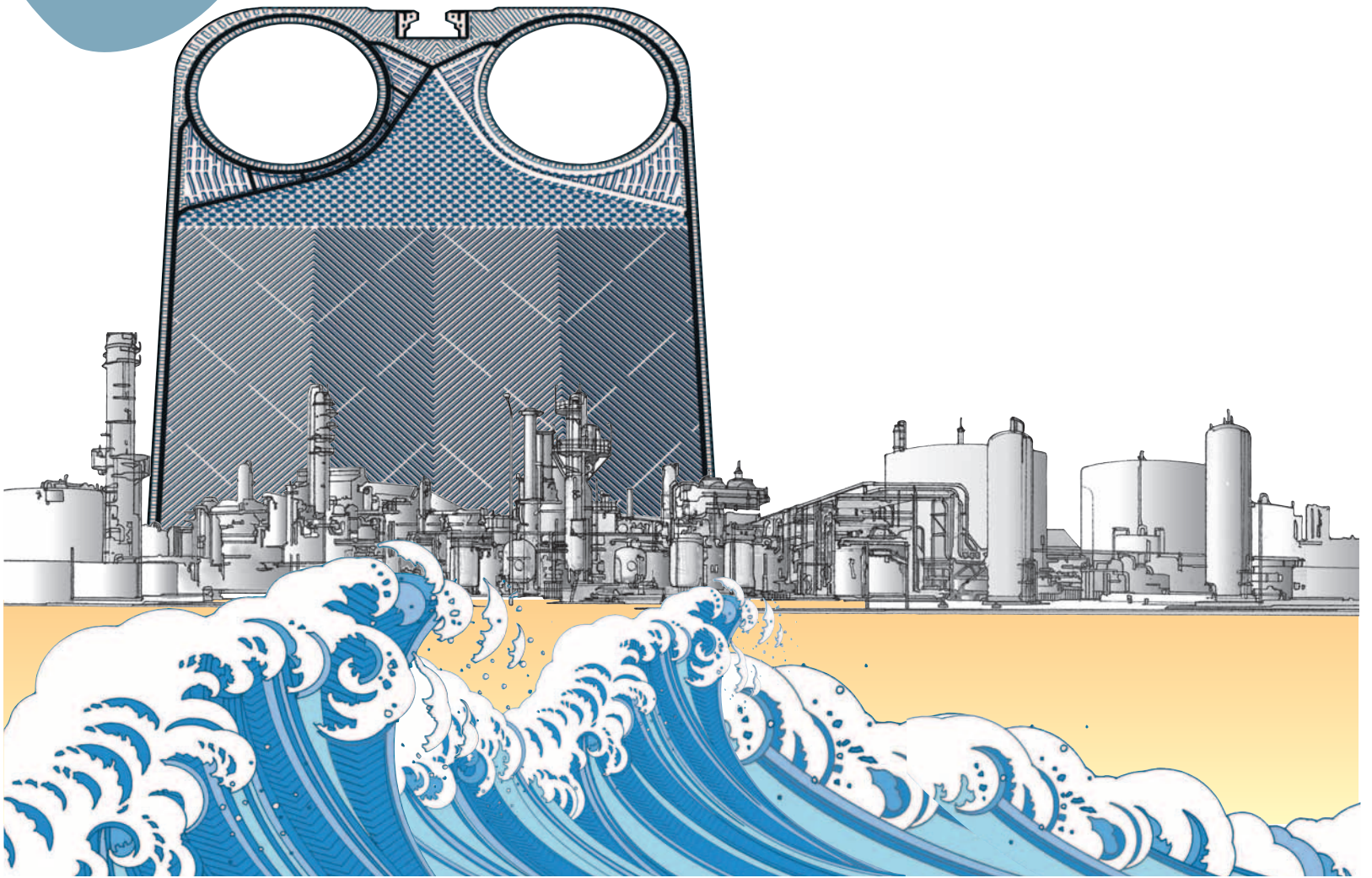


HISAKA Plate Heat Exchanger



HISAKA

HISAKA

- **Worldwide leader in thermal engineering**
- **Global supplier with the original and finest technology**
- **Pioneer to challenge for innovation**

HISAKA WORKS, LTD. has achieved the design and development of Plate Heat Exchangers as a pioneer in Japan since 1953 by the own research, development and technology. With the finest production technique and sensibility of Japanese, we are specializing in thermal engineering and plate technology.

Through the years of experiences and know-how, we have launched the world largest size plate UX-100 (Jumbo) for Central Cooling System (CCS) since 1996 and have been enjoying good reputations all over the world, as the leading company with unique and innovative plate technologies.

All the industries, aiming at the energy-saving and zero emission, are drawing much attention to our Jumbo Plate Heat Exchangers, since they are high-efficiently utilizing the natural source energy, mild to the environment and easy for maintenance.

Not only that, Jumbo Plate Heat Exchangers are also playing major roles in the kind of applications (heater, cooler and heat recovery) in the industries, which may be one of necessary items in the 21st century of environment.



誠心

MAGOKORO

"MAGOKORO" is a motto of our company, which means we HISAKA Works, Ltd. are willing to provide our sincerity to all stakeholders.



Plate Heat Exchanger

Construction

The heat transfer plates are thin sheets of corrosion resistant metals such as stainless steel or titanium and etc. that are press-formed with a corrugated pattern on their surfaces, and sealed with synthetic rubber gaskets in their groove, which seal the flow channel and direct the fluids into alternate channels.

Such plates are suspended, supported and aligned by guide bars, and tightened by bolt and nut between fixed and movable frames.

The equipment can adjust the number of plates so as to meet the heat duty.

Features

● High performance

The press-formed patterns provide a high heat transfer coefficient by a turbulence flow.

● Less weight and compact

Less weight and compact size can be realized by the thin heat transfer plates and the small holding volume. These features provide inexpensiveness and simple installation work.

● Quick start-up

Smaller holding volume makes quick start-up of the process.

● Easy maintenance

Plate Heat Exchanger can be easily opened for inspection and maintenance by loosening the bolts and nuts, and also easily reassembled.

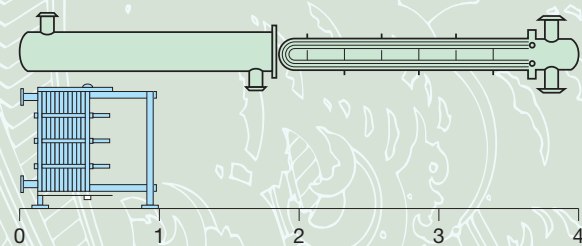
● Duty flexibility

The unit is flexible by increasing / decreasing the number of the plates within the space.

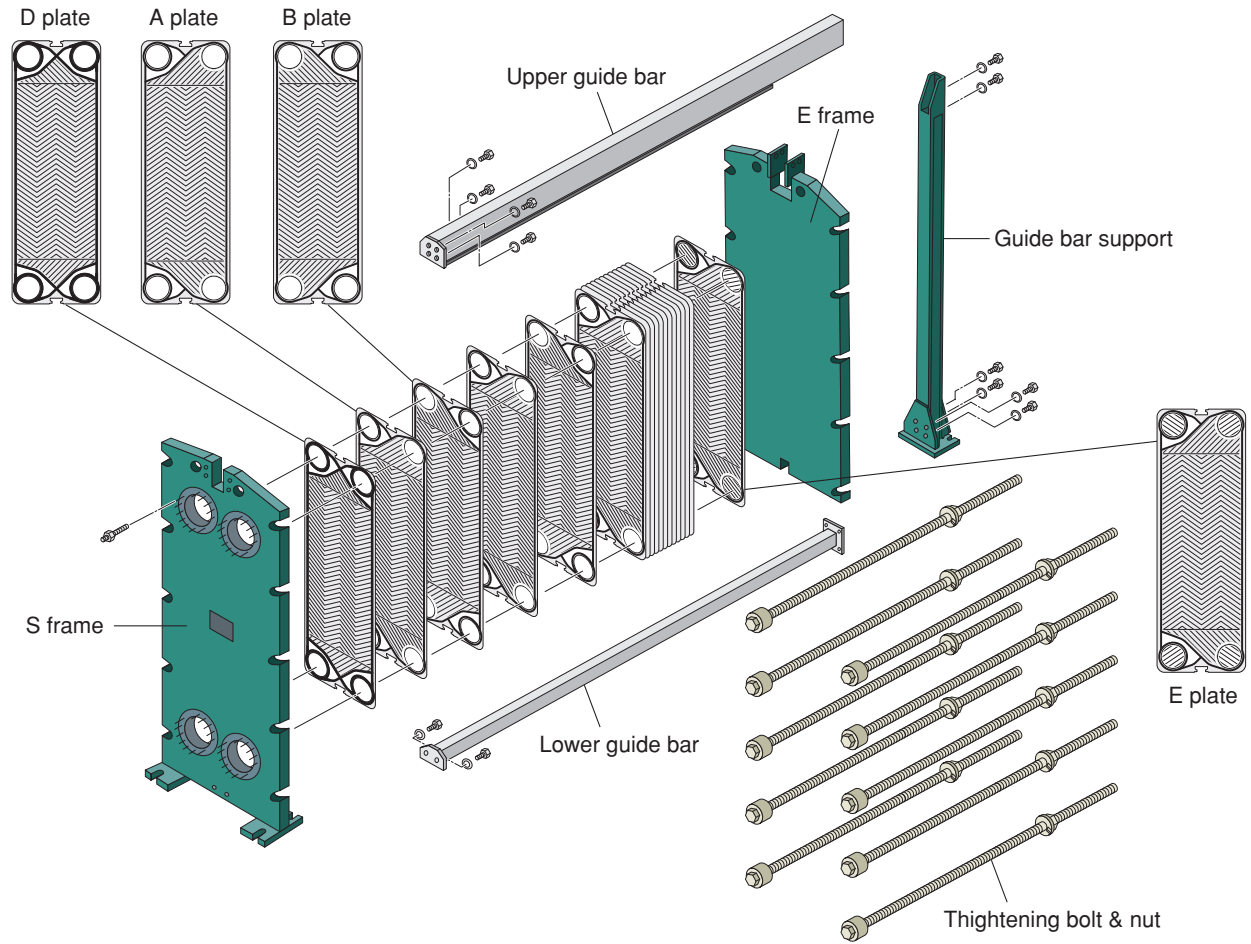
Comparison between Tubular Heat Exchanger and Plate Heat Exchanger

Smaller heat transfer area is obtained by higher heat transfer coefficient (3 to 5 times against Tubular Heat Exchanger). And the construction features achieve as 1/4 for Tubular.

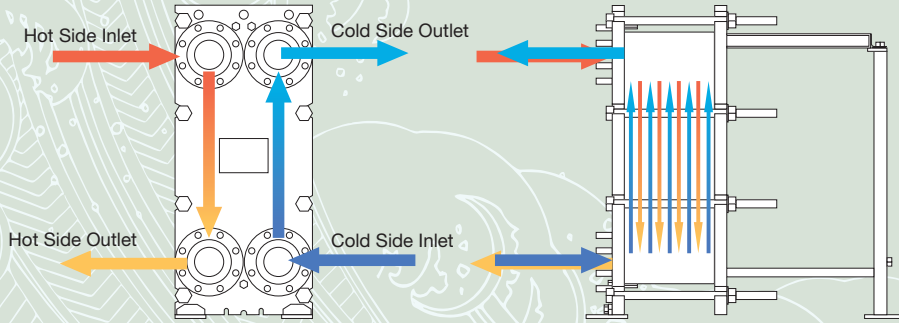
The temperature approach between both fluids can be minimized to the extreme. Simple construction helps easy opening and visual inspection on each plate in the installation space while Tubular requires extra space for drawing-out the tube bundle from the body using heavy machinery.



Basic construction of Plate Heat Exchanger



Heat transfer A and B-plates are of identical pattern – one simply turned upside-down becomes to the other so as to obtain a different flow channel by the gasket line. Further, by the start plate (D-Plate) having its portholes with double seal gaskets and the blind last plate (E-Plate), the construction is such that the fluids do not directly contact the frames.



The counter-current arrows indicate each flow direction of the hot and cold fluids.



Central Cooling System (CCS)

Advantages by using HISAKA Jumbo Plate Heat Exchanger

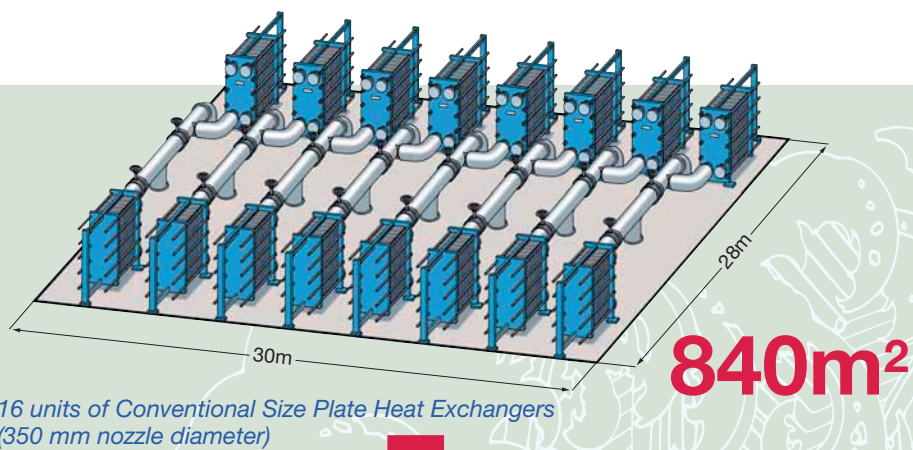
Mega plants and complex, required for total higher optimization, have been internationally planning and constructing. A great number of large size Plate Heat Exchangers are applied for the effective Central Cooling System (CCS) to facilitate those energy consumption and efficiency.

Comparison in the size of Plate Heat Exchangers

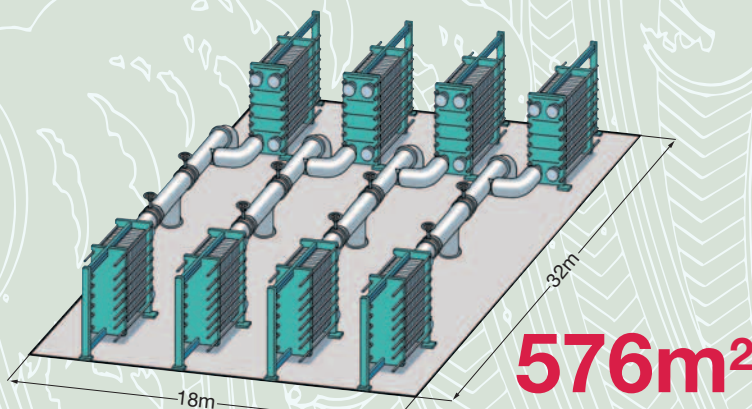
Both Tubular and Plate Heat Exchangers are available for CCS, but Plate Heat Exchanger brings much more advantages. HISAKA Jumbo Plate Heat Exchanger has more benefits than other conventional large size plate heat exchanger ;

- **Less number of units** due to largest connection size even in the same duty.
- **Less heat transfer area** by more pressure drop available for heat transfer.

These major benefits assist less installation space and works, maintenance works and initial cost saving for the equipment itself as well as piping, pumps, valves and instruments.



16 units of Conventional Size Plate Heat Exchangers
(350 mm nozzle diameter)



8 units of Jumbo Size Plate Heat Exchangers
(500 mm nozzle diameter)

The above illustrated installation layout is examples for total flow rate of 32,000m³/h case.

To keep plate surface clean ...

In the case of seawater as cooling medium, performance of Plate Heat Exchanger may be decreased by staying or growth of biological marine life such as seaweed, mussels and other forms of marine life and debris in the plate heat exchanger during long-term operation.

Automatic back-flushing type seawater strainer and inner strainer in plate potrhole will solve this problem to prevent from clogging the plate heat exchanger.

HISAKA Jumbo Plate Heat Exchanger Series

UX-100/UX-130

500mm (20") diameter plate porthole and connection can accept the max. 5000m³/h flow rate. Particularly, its unique plate pattern is allowed to use seawater sufficiently and make high thermal and pressure-resistance, therefore it is most suitable for the largest size of Central Cooling System.

UX-90

Max. 2000m³/h flow rate is possible to pass through by 350mm (14") diameter plate porthole and connection. It has the same design concept as UX-100/UX-130 and it is most suitable for the largest size of Central Cooling System as well as the wide range of applications such as heater, cooler, heat recovery etc.

RX-90

The height is designed as per the particular restriction in the buildings (for HVAC) and/or in the maritime shipments (for Central Cooler or LO Cooler). Also, max. 3200m³/h flow rate can be handled by 400mm (16") diameter plate porthole and connection.

SX-80/90

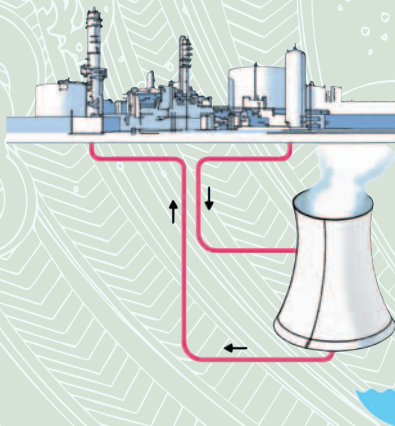
350mm (14") diameter plate porthole and connection can help to handle the max. 2000m³/h flow rate. Plate design has very fine pitch to meet high pressure-resistance and high thermal length (high heat recovery) for heat recovery of process liquids.

Cooling systems

Central Cooling System (CCS)

Central cooling system is an excellent system for cooling the fresh water circulating in the plant by means of seawater and/or low quality water.

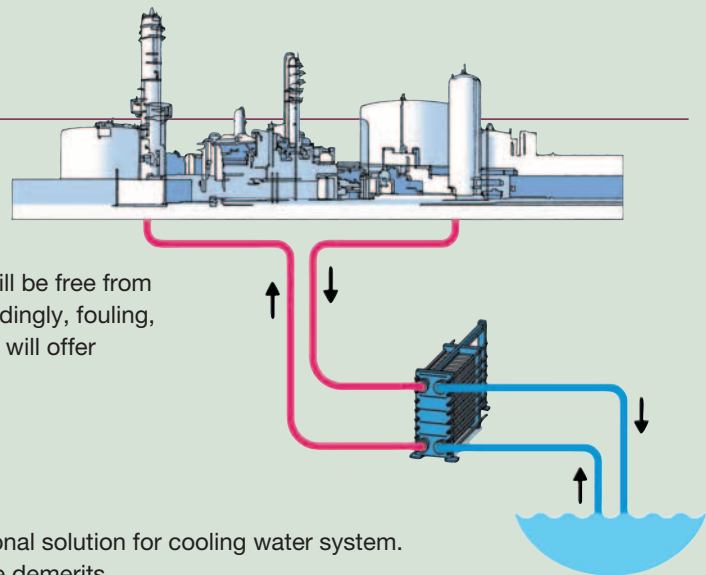
Fresh water is circulating in the closed loop. This cooling system will be free from clogging and fouling, and also made in inexpensive material. Accordingly, fouling, clogging and corrosion are managed only in CCS, then this system will offer economical maintenance and total operation cost saving.



Cooling Tower

Cooling tower is a traditional solution for cooling water system. But this system has some demerits.

- Huge volume of cooling water must be feed always.
- Cooling water quality will be inferior by contact with air and/or by induction of foreign materials.
- Plant side cooling system may be influenced by the low quality cooling water.
- Control system will be required to improve cooling water quality.
- Environmental pollution by the mist of cooling water.



Supply References in CCS

After first installation of the largest Jumbo Plate Heat Exchangers at the petrochemical plant outside Japan in 1996, HISAKA has been developing and manufacturing various kind of Jumbo Plate Heat Exchanger with the innovative new technologies to meet the demands. As a result of our entire improvements, HISAKA Jumbo Plate Heat Exchangers for the Central Cooling System have enjoyed reputations from the customers all over the world ; Chemical and Petrochemical industries, Power stations, Steelworks, Oil and gas refineries and Maritime operations and etc.

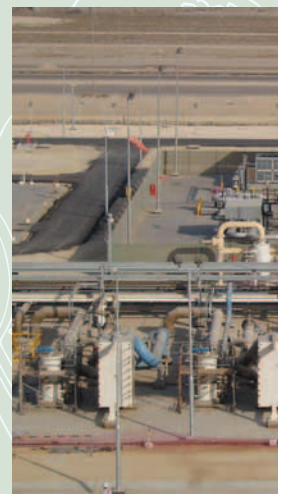
HISAKA is always aiming at further satisfaction and trust with our spirits **“CHALLENGE FOR INNOVATION”**



Ammonia/Urea (Jubail, Saudi Arabia / UX-100, 12units)



Ethylene (Cilegon, Indonesia / SX-90, 15units)





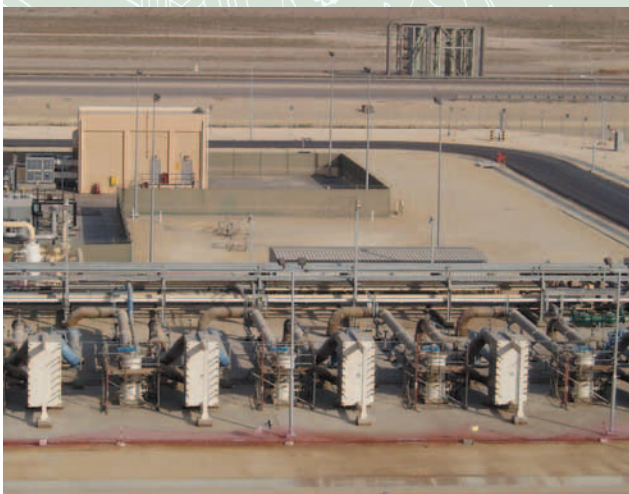
LNG (Ras Laffan, Qatar / UX-130, 16units)



Olefin (Jubail, Saudi Arabia / UX-100, 6units)



Energy center (Lyondell, Holland / UX-100, 11units)



Methanol (Jubail, Saudi Arabia / UX-100, 6units)



Ammonia/Urea (Bontang, Indonesia / UX-100, 2unit & 3units)

Anywhere, HISAKA

HISAKA Jumbo Plate Heat Exchangers are working in the variety of industries for many process applications.



Off shore



Steel



Pulp & Paper



Power station



Marine



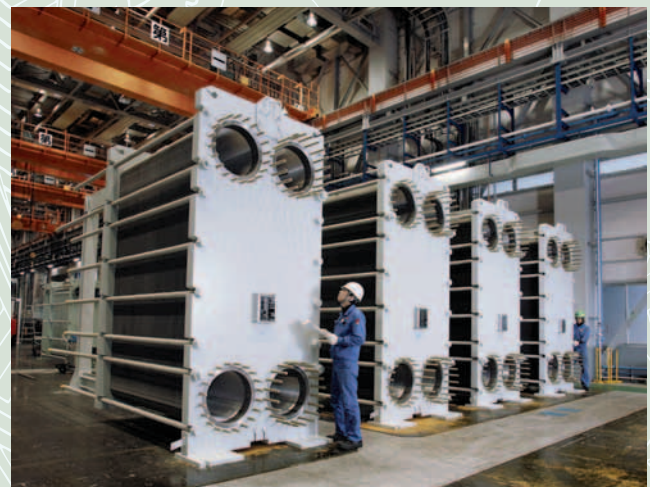
Petrochemical plant



HVAC

Advanced Facilities & QA program

High press-form quality of plates, through our long experiences, builds the heart of products to derive high performance. To achieve it, with the highest and advanced manufacturing technology and facilities, 40,000-ton pressing machine, which is among the world largest, and 20,000-ton pressing machine and automation system, we are realizing top quality products in conformity to ISO 9001.





International Brand

HISAKA, a pioneer of Jumbo Plate Heat Exchanger, has established the solid position, and HISAKA brand is nowadays well-known in the world market.

HISAKA's motto is "MAGOKORO", which is the most important to build up good human relationship. We provide our "MAGOKORO" (sincerity) to all customers for creating high satisfaction and trust together with our partners.

Global Network

HISAKA (SHANGHAI) COMMERCE CO., LTD. (China)

Rm 1603 Shanghai Orientalcenter 699
Nanjing Road West, Shanghai
Tel: +86-21-5211-0701
Fax: +86-21-5211-0720

HISAKA (BEIJING) COMMERCE CO., LTD. (China)

Room 1705 Block B Lucky Tower, 3
DongSanHuan Beilu Chaoyang District Beijing
100027, P.R. China
Tel: +86-10-6461-2411
Fax: +86-10-6461-2571

HISAKA WORKS (CHANGSHU) CO., LTD. (China)

No.1 Xiangyuan Road, Changshu Southeast
Economic Development Zone, Changshu City,
Jiangsu Province, China, 215542
Tel: +86-512-5213-3000
Fax: +86-512-5213-3008

HISAKAWORKS S.E.A SDN BHD (Malaysia) (South East Asia Headquarters)

No 2, Jalan TP 2, Taman Perindustrian SIME UEP, 47600 Subang,
Selangor Darul Ehsan, Malaysia
Tel: +603 5880 4185
Fax: +603 8081 7185
Email: heatexc@hisaka-asia.com

HISAKA WORKS (THAILAND) CO., LTD. (Thailand)

16 Soi Onnut 62 Kwang Suanluang,
Khet Suanluang, Bangkok 10250, Thailand.
Tel: +66-2704-6038 / +66-2704-6039
Fax: +66-2704-6037

HISAKAWORKS SINGAPORE PTE LTD

No. 18, Boon Lay Way, #02-118 Trade Hub 21, Singapore
609966
Tel: +65 6897 8489
Fax: +65 6686 4579
Email: heatexc@hisaka-sing.com





Hisaka Works, Ltd. / Konoike Plant



- Headquarter and local subsidiaries
- Local representatives
- Technology licensee

HISAKINDO HISAKAWORKS S.E.A.SDN.BHD Representative Jakarta Office (Indonesia)

Kompleks Intercon Plaza Block D8-9,
Jl. Meruya Ilir Raya, Taman Kebon Jeruk
Jakarta 11630, Indonesia
Tel: +62-021-58901302(Hunting),
+62-021-5860158, +68-12-81891880
Fax: +62-021-5304380, +62-021-5304885

HISAKAWORKS VIETNAM (Sales Representative Office)

Hoang Dan Building, 47-49,
Hoang Sa Street,
Da Kao Ward, District 1,
Ho Chi Minh City, Vietnam
Tel: +84 8 3910 7355
Fax: +84 8 3910 7356
Email: hisavina@hisaka-asia.com

HISAKAWORKS S.E.A SDN. BHD. (Philippines Representative Office)

One Global Place, 20th Floor, Office Business
Center, 25th Street & 5th Avenue,
Bonifacio Global City,
Taguig 1632, Philippines
Tel: +632 224 4129
Fax: +632 224 4130
Email: hisapino@hisaka-asia.com

HISAKA MIDDLE EAST CO. LTD. (Kingdom of Saudi Arabia)

King Saud Street, PO BOX 8221,
Dammam 31482 Kingdom of Saudi Arabia
Tel: +966-3-8331473
Fax: +966-3-8331471

ARSOPI THERMAL S.A. (Portugal)

Codef 3730-901, Vale de Cambra, Codex,
Portugal
Tel: +351-256-410410
Fax: +351-256-410411

WE are
HERE

HISAKA, YOUR TRUSTED ASIAN BRAND

www.hisaka-asia.com

HISAKAWORKS S.E.A SDN BHD

Company No. 671059-K
(South East Asia Headquarters)
No 2, Jalan TP 2, Taman Perindustrian SIME UEP,
47600 Subang, Selangor Darul Ehsan, Malaysia
Tel : +603 5880 4185
Fax : +603 8081 7185
Email : heatexc@hisaka-asia.com

HISAKA WORKS, LTD

OSAKA : 2-1-48, Higashi-konoike-cho
Higashi-Osaka, Osaka, 578-0973, Japan
Tel : +81 72 966 9600
Fax : +81 33 562 2759

TOKYO : 1-19-8,

Kyobashi Chuo-Ku, Tokyo, 104-0031, Japan
Tel : +81 3 5250 0750
Fax : +81 3 3362 2759

HISAKAWORKS THAILAND CO., LTD.

BANGKOK (Sales Office) :
16 Soi Onnut 62, Kwang Suanluang,
Khet Suanluang, Bangkok, 10250 Thailand
Tel : +66 2704 6037/+66 2704 6038
Fax : +66 2704 6036
Email : heatexc@hisaka-thai.com

RAYONG (Service Center) :

300/118, Moo 1, Tambol Tasit, Amphoe
Pluakdaeng, Rayong 21140 Thailand
Tel : +66 3301 2088
Fax : +66 3301 2089
Email : heatexc@hisaka-thai.com

HISAKAWORKS SINGAPORE PTE LTD (Sales Office)

No. 18, Boon Lay Way, #02-118 Trade Hub 21
Singapore 609966
Tel : +65 6897 8489
Fax : +65 6686 4579
Email : heatexc@hisaka-sing.com

HISAKAWORKS INDONESIA (Sales Representative Office)

Kompleks Intercon Plaza Block D8-9, Jl. Meruya Ilir Raya,
Taman Kebun Jeruk. Jakarta Barat 11630, Indonesia
Tel : +62 021 5890 1302 (Hunting)
+62 021 586 0158, +68 12 8189 1880
Fax : +62 021 530 4380, +62 021 530 4885
Email : hisakindo@hisaka-asia.com

HISAKAWORKS VIETNAM (Sales Representative Office)

Hoang Dan Building, 47-49, Hoang Sa Street,
Da Kao Ward, District 1, Ho Chi Minh City, Vietnam
Tel : +84 8 3910 7355
Fax : +84 8 3910 7356
Email : hisavina@hisaka-asia.com

HISAKAWORKS S.E.A SDN. BHD. (Philippines Representative Office)

One Global Place, 20th Floor, Office Business Center,
25th Street & 5th Avenue, Bonifacio Global City,
Taguig 1632, Philippines
Tel : +632 224 4129
Fax : +632 224 4130
Email : hisapino@hisaka-asia.com

