ITEX

ATTESTATION DE CONFORMITÉ SANITAIRE ACS

Benefit from a ***high thermal transfer capacity***
Particularly well suited to ***low temperature differences*** *between the two fluids*

USE

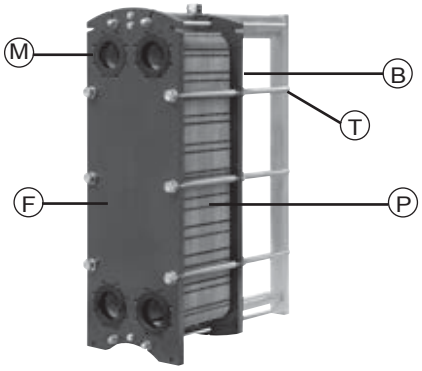
ITEX gasketed plate heat exchangers are particularly well-suited to exchanges between two fluids, and therefore to a wide range of applications:

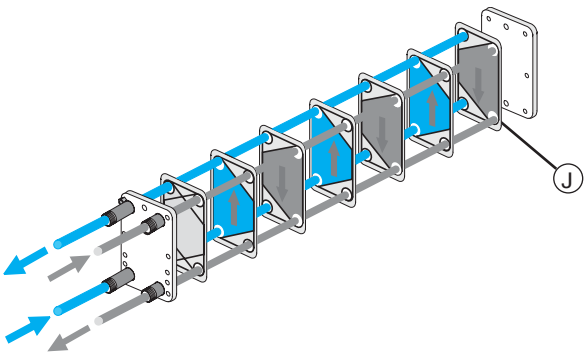
- Heating sub-stations
- Heating of domestic water
- Swimming pool heating
- Buffer on heat pump
- Recovery on corrosive waste
- Geothermal energy
- Oil refrigeration
- Industrial processes

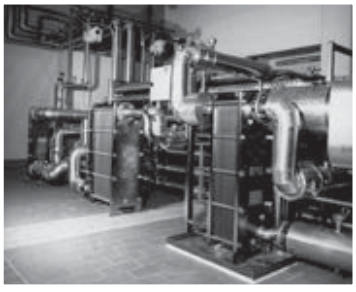
DESCRIPTION

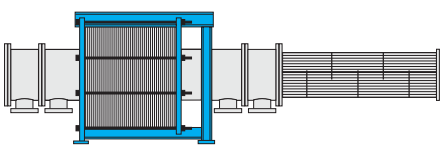
The unit is formed of a set of stamped plates **(P)** and gaskets tightened between 2 plates, one fixed **(F)** and one movable **(B)**, using compression bolts **(T)**. The gaskets **(J)** create flow channels between the plates and prevent venting to the atmosphere. The connection for the fluids is created by 4 tubes **(M)** integrated into the plate(s) or added.

Note: selection of single pass exchange is the only scenario in which the 4 tubes are fitted on the same plate.

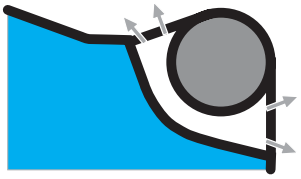








Compact footprint



Double gasket between fluids

HEATING SELECTION

Due to the range's extreme modularity, the selection has been optimised based on the thermal requirements and the allowable pressure drops for the fluids utilised. The importance of this factor must not be underestimated when selecting a heat exchanger, as it influences the choice and number of plates and thus the transfer area.
The transfer area is also influenced by other factors, such as the height to width ratio, the gap between the plates, and the angle and depth of the chevron patterns.
The thermal performance of CIAT heat exchangers is guaranteed.

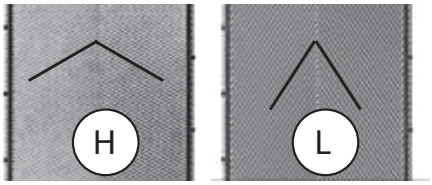
ADVANTAGES

- Excellent transfer coefficient, giving a reduced surface area.
- Very low pinch point temperatures possible.
- High corrosion resistance.
- Compact footprint.
- Easy to install.
- Low-capacity circuits and fluid retention volume.
- Option of surface area extension.
- Unit can be cleaned in-place using a circulation system (CIP).
- Maximum differential pressure = maximum operating pressure

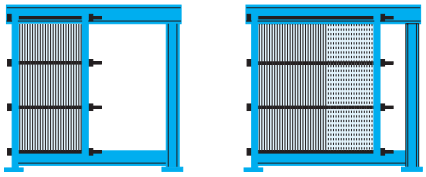
PRECAUTIONS

Ensure the exchanger gaskets are not damaged (one per plate):

- Avoid water hammering and overpressure, and limit on/off cycles.
- Do not use $^1/_4$-turn valves.
- Use with steam between 0 and 3 bar (effective).
- Provide a control system adapted to the requirements and which takes the low capacity of the circuits into account.
- Ensure the plates are kept clean so they maintain their thermal efficiency:
  - Filter fluids containing suspended particles.
  - Ensure the fluids are constantly circulating in the exchanger to prevent any build-up or scale.
  - Install nozzles on the pipes for cleaning in place.



Different patterns


Plates can be added and removed easily

RANGE

		PWB 2+	PWB 4+	PWB 8+	PWB 7	PWB 16	PWB 26	PWB 11	PWB 18	PWB 30	PWB 45	PWB 70	PWB 40	PWB 60	PWB 90	PWB 65	PWB 99
Surface area (m²)		0.021	0.041	0.081	0.078	0.164	0.254	0.125	0.18	0.268	0.482	0.697	0.39	0.645	0.90	0.606	0.972
Maximum flow rate (m^3/h)		19	19	19	63	63	63	80	83	240	240	240	380	380	380	800	730
Connection		DN 32	DN 32	DN 32	DN 50	DN 50	DN 50	DN 65	DN 65	DN 100	DN 100	DN 100	DN 150	DN 150	DN 150	DN 200	DN 200
Standard pressure (stainless)		6	6	6	6	6	6	10	10	10	10	10	10	10	10	10	10
Maximum pressure	Stainless steel	25	25	25	25	25	25	16	10	25	25	25	16	16	16	16	16
	254 SMO	10	10	10	16	16	16	10	_	16	16	16	16	16	16	10	_
	Titanium	10	10	10	16	16	16	16	10	16	16	16	16	16	_	10	10
Max. number of plates		75	75	101	151	251	251	151	151	401	401	401	551	551	701	551	551
Plate thickness	304 stainless steel	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6
	316L stainless steel	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.4 / 0.5 / 0.6	0.4 / 0.5	0.5 / 0.6 / 0.7	0.5 / 0.6 / 0.7	0.5 / 0.6 / 0.7	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6
	254 SMO	0.6	0.6	0.6	0.6	0.6	0.6	0.6	_	0.6	0.6	0.6	0.6*	0.6*	0.6*	0.6*	_
	Titanium	0.5	0.5	0.5	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6	0.5	0.5	0.6	0.6	0.6	0.6*	0.6*	_	0.7	0.6
Plate patterns		H	H	H	H / L	H / L	H / L	H / L	H / L	H / L	H / L	H / L	H / L	H / L	H / L	H / L	H / L
Gasket material (max. T°)	NBR (NITRYL) (110°C)	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI
	EPDM prx (160°C)	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI	OUI
	VITON (200°C)	OUI	OUI	OUI	OUI	OUI	OUI	OUI	_	OUI	OUI	OUI	OUI	OUI	OUI	OUI	_
Capacity between plates (l)		0.063	0.103	0.181	0.217	0.383	0.555	0.366	0.50	0.766	1.217	1.669	1.122	1.659	2.197	2.109	2.339
Max. transfer area (m²)		1.6	3.1	8.2	11.6	40.8	63.3	19	27	107.5	193	279.5	215	355	631	334	534

- The ITEX range is built with plug-in gaskets and lateral circulation.
- The ITEX-AGEO+ (PWB 8+) groundwater exchangers and ITEX-POOL+ (PWB 4+) pool heaters are available from the "Residential catalogue".
- * Please consult us.

THERMOFORMED INSULATION

DN 32+ & DN 65 option

Description

A thermoformed and semi-rigid prefabricated insulation easy to install and to adjust to the configuration of the heat exchangers and to customer requirements.
Supplied as a kit, it can be assembled quickly and easily, with no need for special tools (cutters or similar), using the assembly instruction sheet and the pre-punched templates.
Particularly well adapted to HVAC applications, its special "double-layered" structure, comprising two different closed cell expanded elastomers (max. thickness 30 mm) makes it suitable for heating and cooling applications.

Range

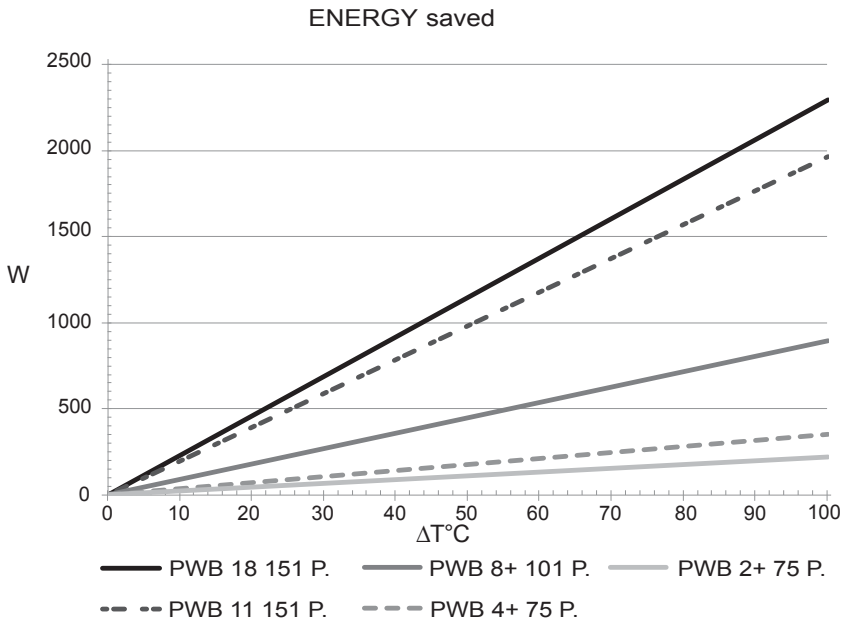
DN 32+ : PWB 2+, PWB 4+ and PWB 8+ models.
DN 65 : PWB 11 and PWB 18 models.

Advantages

- Reduced energy losses (example of potential gain on an exchanger with insulation: see graph below).
- Easy to adapt on site to the manufacturing configuration (single or multi-pass, with or without a mounting bracket kit, with or without condensate pan, etc.).
- Easy to adapt to customer requirements (for example: specific mounting brackets provided by the customer, specific circulation of fluids, etc.).
- Low installation cost.
- Available from stock.
- Lightweight and resilient

Technical specifications

Operating temperature limits: -10°C/+130°C.
Thermal conductivity λ: 0.0376 W/mK (average value at 40°C).
Fire resistance: class M1 AFNOR NF P92 501 (outer layer) and class B2 DIN 4102 (inner layer).



ΔT°C = difference between the average temperature in the exchanger and the room temperature.
W = energy saving (reduction of losses) based on the number of plates.
Example: PWB 18 151-plate exchanger
Circuit 1: water 90°C → 70°C
Circuit 2: water 60°C → 80°C
Average temperature in the exchanger:
(90+70+60+80)/4 =75°C
Room temperature: 10°C
ΔT°C = 75 – 10 = 65°C
Energy saved: approximately 1 500 W (1.5 kW)

Note: The results depend to a large extent on the actual operating conditions and the accuracy of assembly.

COOLING INSULATION

Option from DN 100

Description

The CIAT insulation system is designed to offer dual performance from a single component. The high-density material used (45 kg/m^3) offers effective acoustic and thermal insulation, enabling energy savings in their simplest form, whilst improving overall comfort by significantly reducing the exchanger's sound level.

Furthermore, as part of our desire to offer a quality service, all of our insulation systems are designed to be quick and easy to assemble. They are supplied in kit form, accompanied by detailed assembly instructions.

A metal structure allows the insulation panels to be assembled, forming a box where each panel can be easily removed, independently of the others.

This design allows a quick visual inspection of the inside of the box.

It is possible to remove all the insulating panels or just the lateral panels very quickly, and to open the heat exchanger without having to disassemble the complete structure.

Advantages

- Control operations facilitated: the quick attachment system for the panels and the self-supporting structure means that some or all of the panels can be removed to allow a quick visual inspection of the outside of the exchanger or its components (set of plates, frame, connections, etc.).
- Complete exchanger insulation: specially designed to cover the exchanger (excluding the base resting on the ground) and position the insulation as close as possible to the framework (e.g. holes in the insulating panels for fitting the threaded rods on the removable plate side).
- Rapid assembly of the aluminium tube structure thanks to quick lock assemblies.
- High-density insulation combining high thermal and acoustic performance.
- Insulation supplied in a complete kit of simple to use elements, all ready to assemble.
  The assembly instructions enable the kit to be quickly put together by a single operator.
- Access to the exchangers for maintenance operations (disassembly and assembly) is facilitated: thanks to easy-to-remove lateral panels, the support frame remains in place.
- Insulation designed to enable the condensate drain pan to be installed underneath the stack of plates.
- Accessory which complements the Itex product range.

Technical specifications

- Sandwich of high-density expanded polyurethane panels, pre-punched to allow immediate installation with no additional preparatory work required. Finish on the inner and outer faces: painted aluminium, 0.5 mm thick.

  Foam with no HCFs, CFCs or HFCs.

  Usage limits: maximum temperature for the circulating fluids -10 to +80°C.

  Thermal conductivity of 0.024 W/m°C, measured in accordance with the ISO 8302 standard.

  Acoustic insulation to a maximum of 34 dB.
- Self-supporting frame and modular design: panels assembled with no screws and held in place by the profiled aluminium tube structure.
- Panel thickness: 45 mm.
- Panel attachment: secured by a quick and easy locking system, used to retain or release the polyurethane panels.

PROTECTION FOR THE SET OF PLATES

Option from DN 100

Description

The protection system for the set of plates is designed to enclose the entire set of plates.
It is recommended to be used as protection when the temperature of the fluids circulating in the exchanger reaches or exceeds 80°C.
The protection is designed in two sections secured together by bolts, and can be adapted to the dimensions of the exchanger.
Each section is formed of a stainless steel panel and a 13 mm-thick section of ceramic fibre insulation.

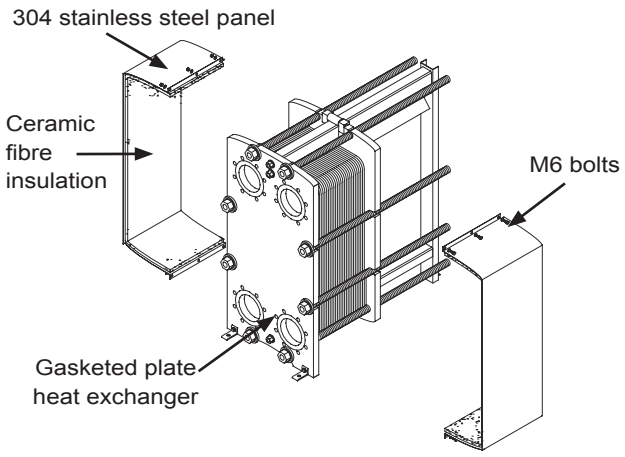
Advantages

- Personnel carrying out maintenance work or manoeuvring close to the exchanger are protected.
- Heat protection: risk of contact burns is prevented.
- Mechanical protection: risk of burns due to splashes of hot fluid is prevented.

Technical specifications

- Stainless steel panels (AISI 304).
- Ceramic fibre insulation, 13 mm thick.

Diagram



CONDENSATE DRAIN PAN

Option for all sizes

Description

The recovery pan is designed to drain not just the water forming condensation on the exchanger, but also any fluid which could come from an accidental leak around the exchanger.
Its use is recommended in all applications which carry a risk of condensation and those which carry a risk of environmental pollution.
The pan is made from stainless steel and is designed to be installed underneath the exchanger.
It is positioned and secured to the exchanger using a system of screws, nuts and washers.

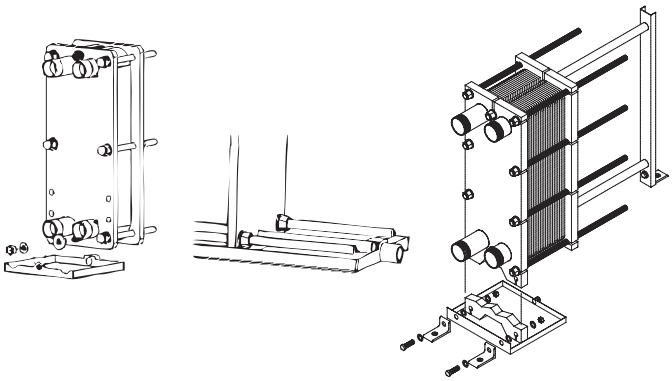
Advantages

- Recovery and drainage of all traces of condensation which could form on the external surface of the exchanger.
- Recovery and drainage of any fluids which could accidentally escape from the exchanger: ensuring the safety of personnel and of the environment.

Technical specifications

- Stainless steel panels (AISI 304).
- ¾'' sleeve (internal tapping) for drainage of the collected fluids.

Diagram



Depending on the size of the exchanger

Precautions

Connect the ¾'' sleeve to a suitable discharge system.

Head office
Avenue Jean Falconnier - B.P. 14
01350 - Culoz - France
Tel.: +33 (0)4 79 42 42 42
Fax: +33 (0)4 79 42 42 10
info@ciat.fr - www.ciat.com

CIAT Service
Tel. : 08 11 65 98 98 (0,15 € / mn)
Fax : 08 26 10 13 63 (0,15 € / mn)