

# UniBraz

High quality - High performance  
brazed plate heat-exchanger

# UNEX

HEAT EXCHANGERS



The UniBraz plate heat exchanger is an extremely efficient and compact unit, able to provide good results in a number of liquid / liquid situations.

## IDEAL FOR USE IN:

- Cooling and air condition
- Heating engineering
- Product cooling / warming
- Oil heating / cooling
- Many other uses

## COOLING AND AIR CONDITION:

- evaporator
- condenser
- oil cooler
- oil heater
- economizer
- desuperheater

## HEATING ENGINEERING:

- district heating technology
- warm water preparation
- floor heating systems
- swimming pool engineering

## PRODUCT COOLING / PRODUCT HEATING:

- chemical industry
- coating technology
- pharmaceutical industry
- process engineering

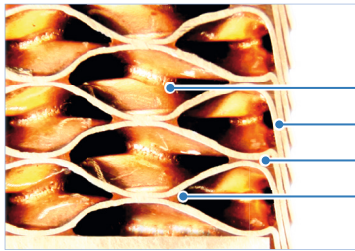
## OTHER USES:

- to find out about other uses for UniBraz please contact your UNEX partner.



## DESIGN & FUNCTION:

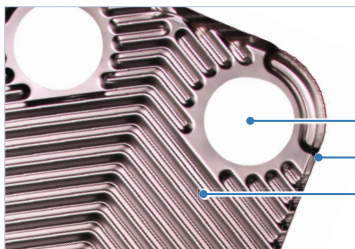
UniBraz plate heat exchangers are designed as strong, compact and efficient exchangers, maximising heat transfer from one medium to another whilst preventing cross-contamination. The labyrinth of plates and narrow channels created within the exchanger create a large heat transfer area with induced turbulence to ensure improved efficiency with minimum pressure loss. The plate form creates contact points to the next plate and these are used to connect the plates together with the brazing material, providing an extremely strong and stable structure.



Contact point  
Side wall  
Brazing material as seal  
Brazing material at contact point

## CONSTRUCTION:

The UniBraz range is constructed on a modern automated production line, helping to optimise and guarantee quality at every stage. The process begins with sheet stainless steel on large coils being fed into a high speed press together with brazing material, also fed from reels.



Port-Hole  
Side wall  
Plate pattern

Here the sheet is cut and pressed to form the flow channels, portholes and side walls of the individual plate. The plates are then alternately rotated through 180° and stacked to produce the plate pack, as programmed. The endplates and required connectors are fitted prior to the exchanger being prepared for the oven.

Batches of prepared heat exchangers are rolled into a vacuum oven, where they are slowly heated during the next 8 hours (depending on the brazing material used) to over 1,000°C before being cooled to room temperature again. It goes without saying that the heat recovered during the cool down stage is used for heating the production and office space. During the heating in the vacuum, the brazing material melts and capillary action helps ensure that the brazing material flows into all of the joints and contact points it will seal when cool.

## BRAZING & MATERIAL TECHNOLOGY:

### Copper vs Cu-Free brazing

Copper is the industry standard brazing material for brazed plate heat exchangers. There are cases where copper is not suitable for the media flowing through the system. Some corrosive and acidic fluids need alternatives such as Nickel brazing materials, which provides a good alternative for the majority of applications. High quality stainless steel is used throughout brazed plate heat exchangers. Depending on the size and model plate thicknesses from 0.25 – 0.6mm in 1.4301 (AISI 304), 1.4401 (AISI 316), 1.4404 (AISI 316L) and 1.4547 (254SMO) are used. For copper brazing a 99.9% pure copper is used.

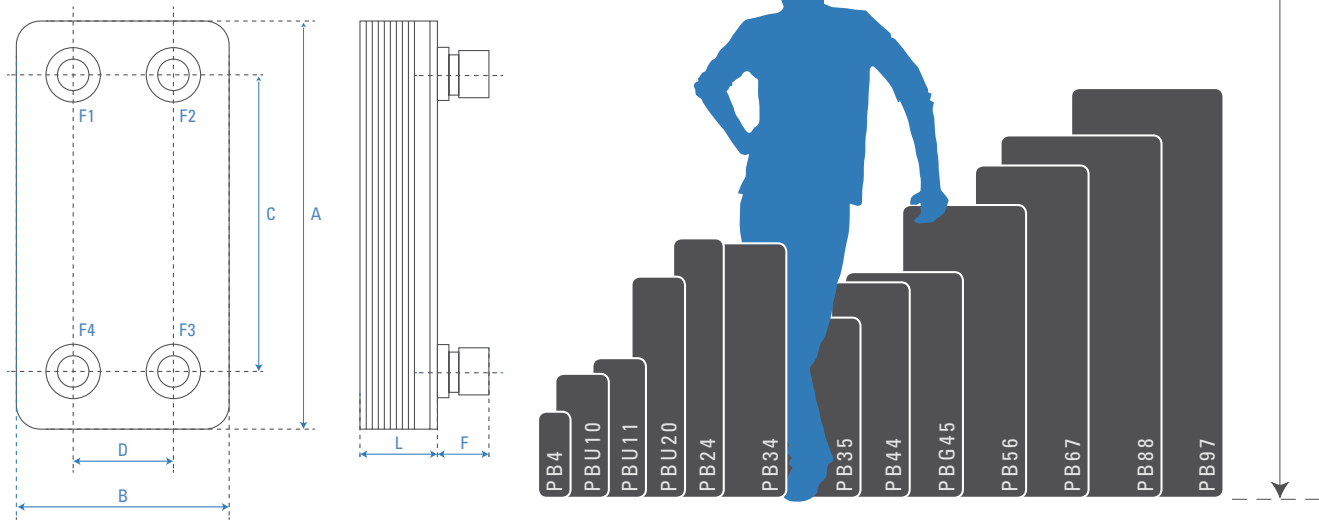


## QUALITY:

The heat exchangers are now ready to be pressure and leak tested in an automated pressure test station. The use of Helium, due to its very small molecule size, which would find any leaks that a larger molecule might not pass through, helps ensure that all exchangers leave the production in perfect condition and according to the European Pressure Equipment Directive (Annex VII of Directive 97/23/EC). Once the test has been successfully completed, a name plate may be attached and the exchanger is free to be released from production and sent to the customer.



## STANDARD PRODUCT RANGE:



## UNIBRAZ PRODUCT RANGE

*,***	Type	PB4	PBU10	PBU11	PBU20	PB24	PB34	PB35	PB44	PBG45	PB56	PB67	PB88	PB97	
CHANNEL VOLUME	primary (I) (F1→F4)	0.025	0.064	0.073	0.11	0.12	0.16	0.21	0.221	0.31	0.219	0.399	0.6	0.55	
	secondary (I) (F3→F2)	0.025	0.064	0.073	0.11	0.12	0.16	0.21	0.221	0.31	0.219	0.399	0.6	0.7	
	empty weight (kg)	0.7 + n * 0.05	1.51 + n * 0.112	1.54 + n * 0.112	2.54 + n * 0.112	3 + n * 0.25	4.7 + n * 0.29	8 + n * 0.38	10 + n * 0.54	13.2 + n * 0.5	13.6 + n * 0.43	11.5 + n * 0.8	39.5 + n * 1.25	40 + n * 1.5	
OPERATING LIMITS	Pmax(bar)	30	30	30	30	25	25	25	30	30	25	30	30	25/16**	
	Temp. (°C)	-0/+200	-195/+195	-195/+195	-195/+195	-10/+180	-10/+180	-10/+180	-196/+200	-196/+200	-10/+180	-196/+200	-196/+200	-10/+180	
DIMENSIONS	Height (mm)****	A	204	296	334	532	625	613	466	532	543	706	802	875	990
	Width (mm)	B	74	125	125	125	118	186	256	271	281	296	271	386	365
	Con Height (mm)	C	170	243	281	479	571	519	380	421	460	583	690	723	861/816**
	Con Width (mm)	D	40	72	72	72	65	92	170	161	198	180	161	237	214
	Plate Pack (mm)	L	8 + n * 2.23	9 + n * 2.3	9 + n * 2.3	9 + n * 2.3	7 + n * 2.3	11 + n * 1.75	10.5 + n * 2.5	11.5 + n * 2.34	11.5 + n * 2.65	13 + n * 1.4	11.3 + n * 2.31	23 + n * 2.31	10 + n * 2.7
	Standard Con Length (mm)	F	20	28	28	28	50	52	50	65	37	80	65	90	90
	Standard Connection Type		G 3/4"	G 1"	G 1"	G 1"	G 1"	G 2"	G 2"	G 2 1/2"	G 2"	DN65 (Comp)	G 2 1/2"	DN100	DN65/100**
	Max N° Plates	50	150	150	150	120	200	140	260	160	200	260	360	200	
* Volumes, weights and dimensions of finished product may vary slightly				*** Other sizes also available with Cu or Cu-Free brazing - please consult your sales partner											
** Primary side / Secondary side				**** Excluding stands and lifting rings where fitted - download technical drawings for further details											

Standard products are normally held on stock or can be built within a short time. A wide range of other sizes is also available.

## OPTIONS & TAILOR-MADE:

For the vast majority of uses, standard heat exchangers are perfect for quick and simple installation and duties. The wide array of UniBraz accessories available allow even more flexibility for standard exchangers without the need for modification.

For OEM customers and applications where special demands are present, necessary adaptations can be designed and integrated into the exchanger during production. Typical variations include different types of connectors (eg. Hydraulic, direct brazing, flange, quick connex, special district heating connections and even

without any connections for direct connection to sealed components), sensor housing direct into the porthole for the exact measurement of operational parameters, the addition of mounting studs with internal or external threads, or other brackets and pins as required or construction of compact units in a multi-pass form, bringing the benefits of long thermal lengths into confined spaces. UNEX engineers are happy to discuss your exact needs with you to find the right solution, your solution.

# Accessories & Extras:

A wide range of accessories suitable for UniBraz are available to help with quick, easy and professional selection, fitting and maintenance of the exchanger.

## Insulation

Combined or variations for use in hot or cold systems. Meeting current European fire regulations



More information on the UniInsulate product sheet

## Connections

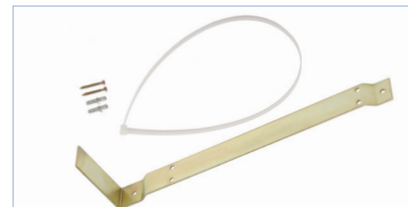
Removable connections suitable for connection to pipework in weld, thread or braze variations



More information on the UniConnect product sheet

## Mounting

A variety of stands and brackets to correctly support the heat exchanger



More information on the UniMount product sheet

## Cleaning & Scale removal

Help ensure optimum operation by keeping plates and channels clear and free of dirt and lime scale



More information on the UniCIP product sheet

## Calculation

Together with the UniCalc calculation programme, the UniSelect App is a quick and simple selection tool to help choose the correct exchanger for standard applications.

# UniSelect

selection software for  
standard heat exchangers



UniSelect can be used on PC, tablet or smart phone.

## Summary:

*The UNEX UniBraz plate heat exchanger:*

- pressure from vacuum up to 30 bar
- usable in temperatures -196 °C to +200 °C
- high heat transfer coefficient
- low logarithmic temperature differences
- compact design
- low weight compared to tubular heat-exchangers
- low pressure drop

- good self-cleaning, due to high media velocities
- heat transfer surfaces 0.11 – 107.4m<sup>2</sup>
- suitable for parallel use
- wide range of fittings and accessories
- construction for individual applications
- use as heat-exchanger, condenser or evaporator

## Full product range:

Alongside UniBraz, UNEX has a wide range of heat exchangers of different forms offering solutions for all heat transfer requirements



## Sales Network:

UNEX heat exchangers and accessories are available from your UNEX partner.  
Your nearest partner can be found on the UNEX website [www.unex-eu.com](http://www.unex-eu.com)