BRAZED PLATE

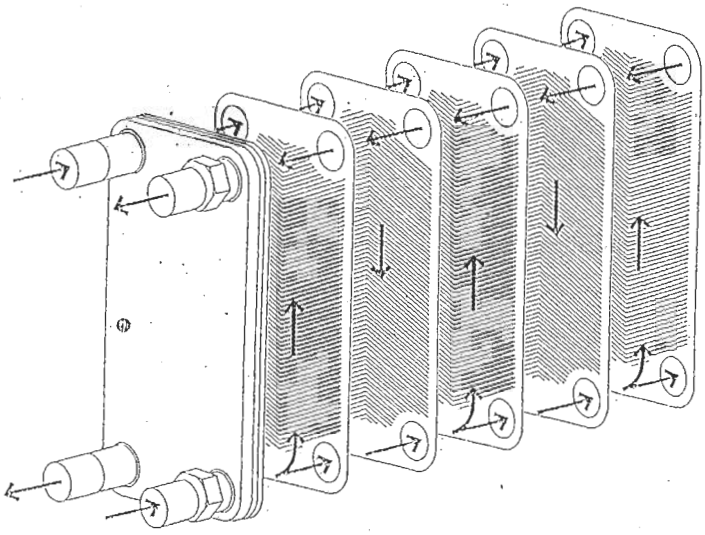
HEAT EXCHANGER

INSTALLATION & MAINTENANCE

MANUAL

Designing and Working Principle

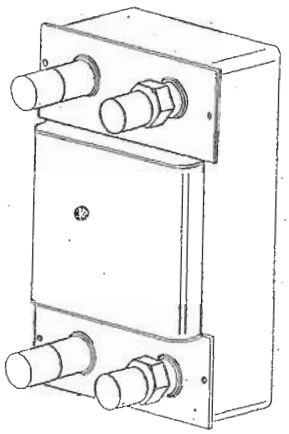
Brazed Plate Heat Exchangers (PHE) consist of pressed SS-plates which are brazed with copper in a vacuum furnace. In separate flow chambers the 2 media flow in opposite direction. **Product range:** Brazed PHE are available in 4 model sizes: 18, 25, 55 and 100. Connections can be either for soldering (L) or of threaded type (G). Other on request (Flange, Weld-connection, Females, Tongue & Groove).



Pressure Rating

Vacuum to max 40 bar. **Temperature rating:** -160° to max. 204°C. See Manufacturers table. User to provide protecting devices to secure pressure and temperature rating. **Materials of construction:** Stainless steel EN: 100 28 / 7, 1.4401, Copper 99.9%. All models can be supplied with a diffusion-tight, non-removable PU-foam-insulation (1) or a removable clip-on insulation (2). **Media of use:** Only use suitable media. Do not use corrosive, aggressive media, such as seawater, ammonia, acids etc. Manufacturer provides advise on suitability on request.

①



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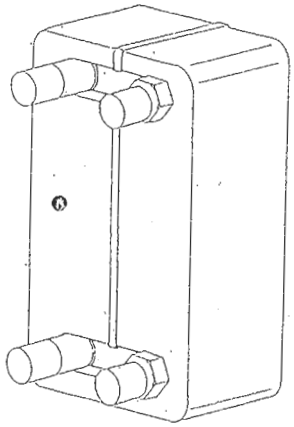
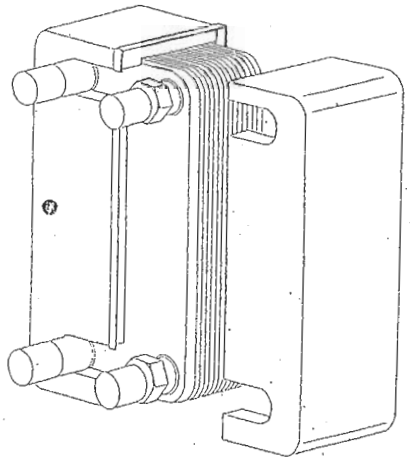




Modell:	Min temp.	Max temp.	Max pressure primary side	Max pressure secondary side
18	-160°C	204/125°C	40/40 bar	40/40 bar
25	-160°C	204/125°C	32/36 bar	30/34 bar
55	-160°C	204/125°C	40/40 bar	40/40 bar
100	-160°C	204/125°C	30/30 bar	24/27 bar

Data Plate Information

L	=	corrugation of the plate (H, M or L)
18	=	model size (18, 25, 55 or 100)
20	=	number of plates
LL	=	connection prim / sec (G=OD thread, L=for soldering, etc.)
X	=	insulation, 30 mm Polyurethane foäm

(2) **Serial no.:** code for type, date of production, running no.

(3) **Manufactured:** year, month and day.

Example:

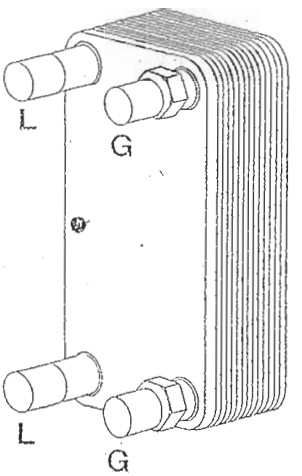
DHT
Diversified Heat Transfer, Inc.
1710 Flushing Avenue
Ridgewood, NY 11385 / Phone: 718-386-6666

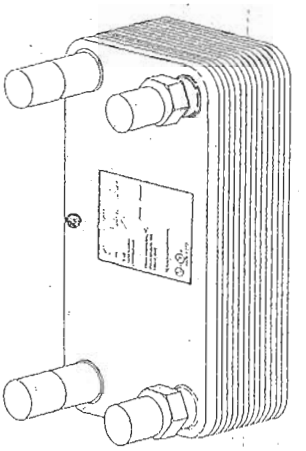
Type:	M18-20-LL	①
Serial Number:	18023010305006	②
Manufactured:	010305	③

	Primary	Secondary
Min temperature (TS), C°:	-160	-160
Max temperature (TS), C°:	204/125	204/125
Max pressure (PS), bar:	40/40	40/40
Test pressure (PT), bar:	72	72
Volume(V), L:	0.5	0,55
Fluidgroup:	I/II	I/II

18023010305006

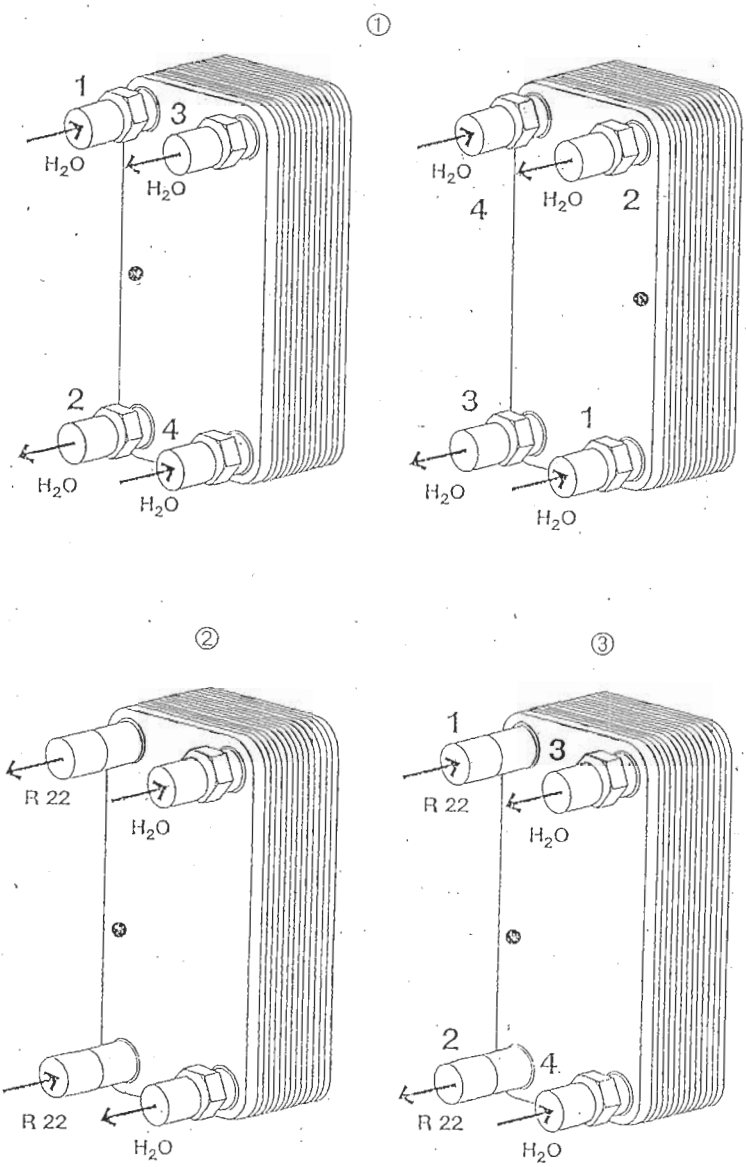
CE-0409





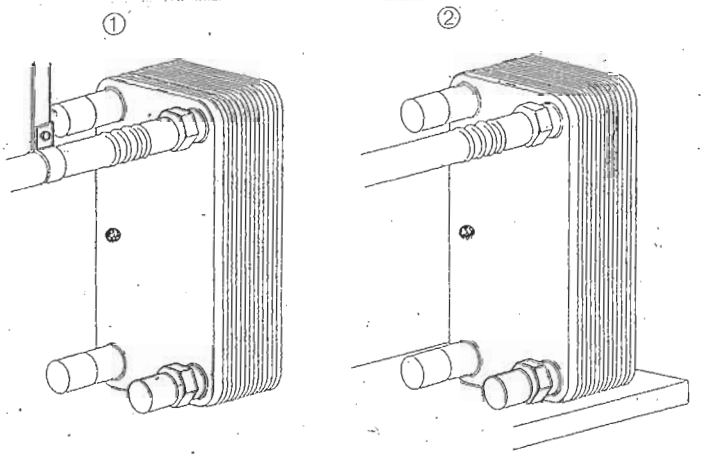
Installation

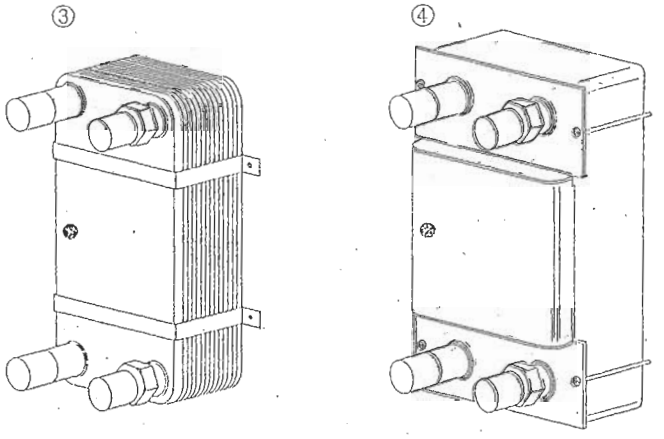
PHE to be installed in counter current flow. The primary side is marked with a blue dot • (e.g. product, refrigerant). The primary side is surrounded by the secondary channel (e.g. water) (1) Liquid to liquid: installation in any direction possible as long as counter current flow is secured (2) Refrigerant evaporator (3) Refrigerant condenser



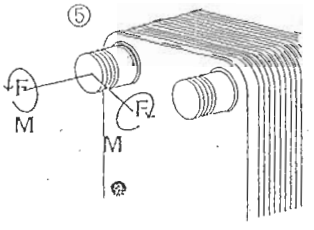
Mounting

Always mount your PHE vertically. Small PHE can be fastened directly to the piping (model 18 and 25 up to 30 plates) (1). PHE is to be mounted on a foundation (2), on foot or by holding devices (3) (4). When vibrations, pulsation, stresses or shocks etc., are induced from the system, always use flexible hoses or compensator. Do not exceed maximum allowable nozzle loads (5).



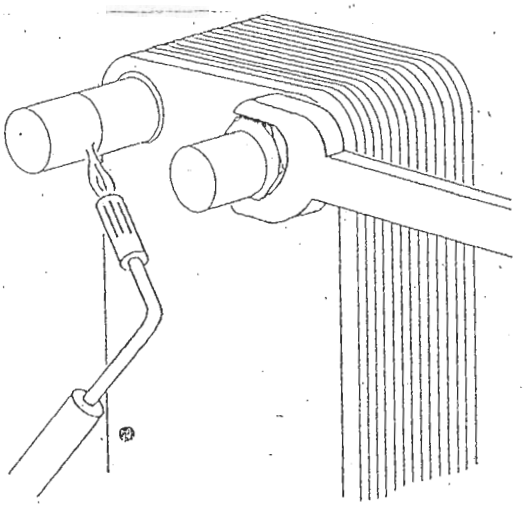


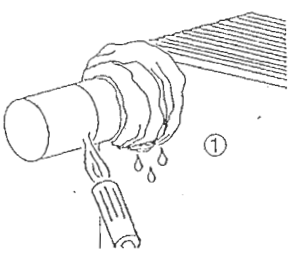
Type		F_{max}	M_{max}
18	1"	15 kN	5 Nm
25	1"	20 kN	25 Nm
55	2"	35 kN	50 Nm
100	DN 65	50 kN	100 Nm

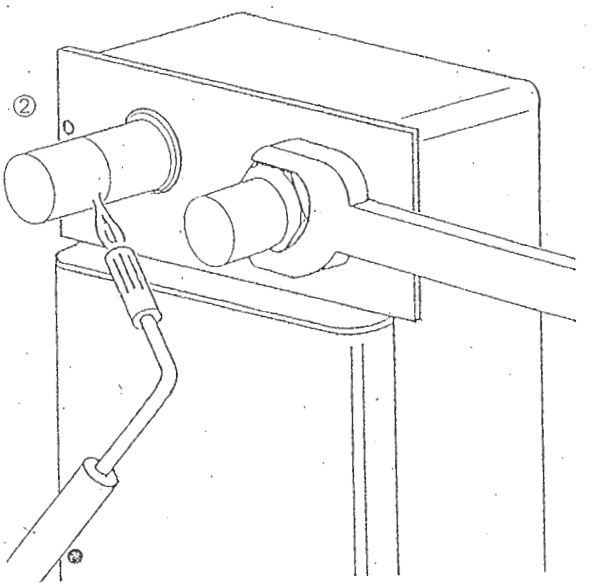


Soldering

Clean surfaces and degrease them. Apply chloride flux with brush. Slide copper pipe into L-connection and solder with 40-55% silver solder. Direct the flame towards the piping and solder at max. 650°C. To avoid oxidation protect the inside with N_2-gas. Protect the PHE from excessive heating by wrapping a wet rag around the connection (1). The foam-insulation is to be protected by the mounting plate (2).



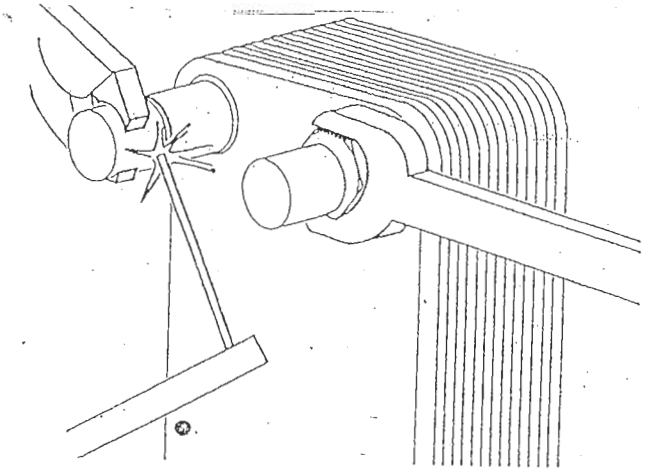


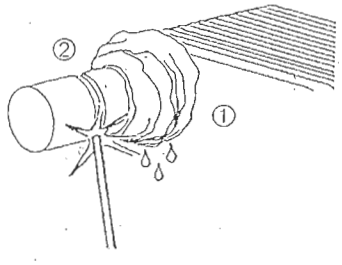


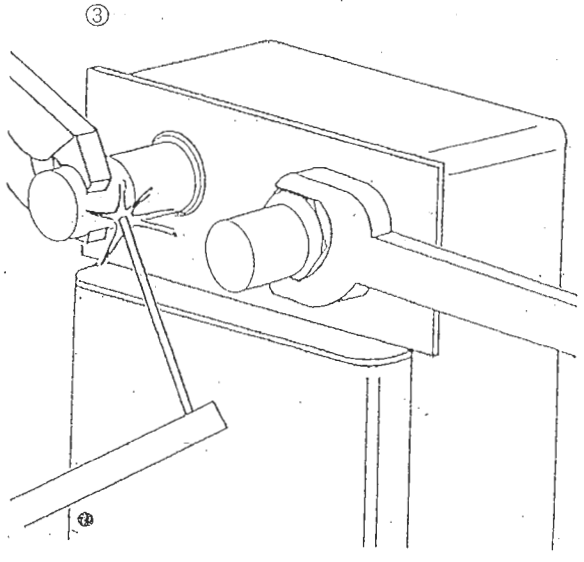
Threaded Connection

First mount your brazed PHE ***without*** connecting the piping. Then connect the piping to it by means of female, couplings etc. **Welding:** Protect the PHE from excessive heating by wrapping a wet rag around the connection (1). Pipe and L-connection have to show a chamfer (2). Use TIG- or MIG welding. To avoid oxidation protect the inside with N_2-gas. The foam-insulation is to be protected by a plate (3).

CAUTION: Do not expose connections to excessive loads.

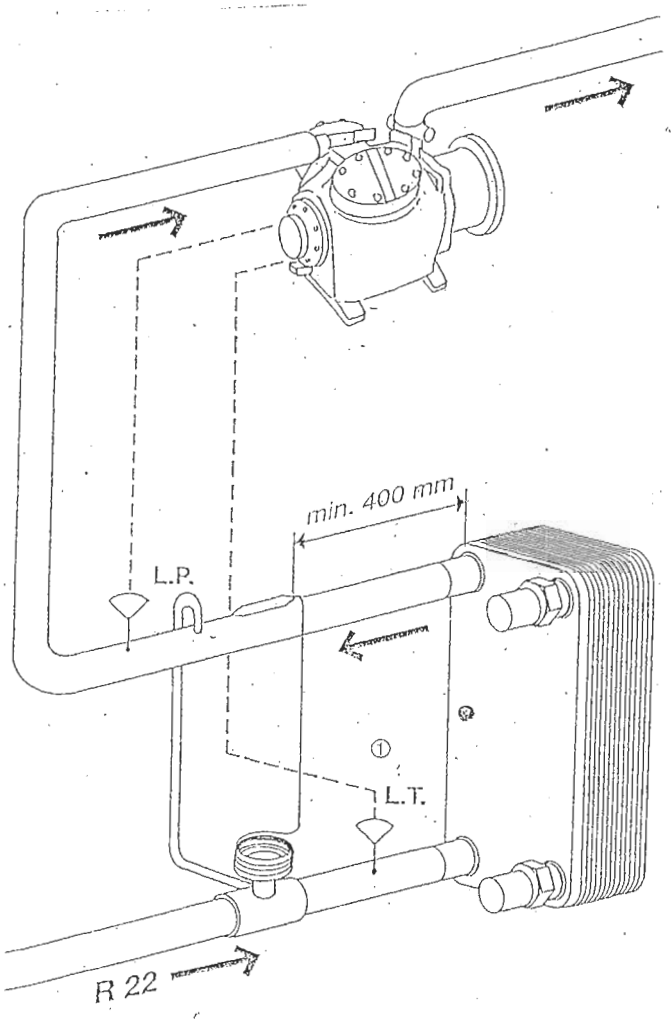






Freeze Protection

Any formation of ice will damage the PHE and is thus to be avoided at all costs! Install a filter of 1 mm on waterside. Use brine (e.g. glycol) when temperatures are close to freezing point. Use thermostats and/or flow-switch to secure constant water flow. Avoid pump-switch-off procedure. Effective freeze protection can be secured by using a thermostat connected to the compressor (1). Use *MISTER* like shown in table.



Use of *MISTER*	
Model 18	> = 24 Plates
Model 25	> = 30 Plates
Model 55	Always
Model 100	Always

Cleaning

Protect the PHE by means of filters (mash size 1mm) against entry of coarse dirt. When performance drop is experienced clean PHE by means of CIP (Cleaning-In-Place). Circulate suitable cleaning solution to flow in reverse to normal direction over the PHE (detergent or weak acid e.g. formic-, citric-acid. Always rinse the PHE with water after cleaning.