



# Brazed Plate and Gasketed Plate Heat Exchangers

# Brazed Plate Heat Exchangers

## Smaller, lighter, stronger and more efficient

Lowara Brazed Plate Heat Exchangers are ideal for residential and light commercial hydronic systems because they provide maximum heat dissipation from a compact, lightweight heat exchanger. Unlike conventional shell and tube heat exchangers, our units can be used even in applications where space is at a premium. Their efficient design allows them to provide more heat transfer using less space, making them well suited to a variety of installations, including:

- Radiant Floors
- Domestic Hot Water
- Pool Heating
- HVAC
- Solar Heating
- District Heating
- Domestic/Commercial Boilers

## Superior heat transfer

Our Brazed Plate Heat Exchangers offer the highest level of thermal efficiency and durability in a compact, low cost unit. The corrugated plate design provides very high heat transfer coefficients, resulting in a more compact design. The units stainless steel plates are vacuum brazed together to form a durable, integral piece that can withstand high pressure and temperature.

## Designed for dependability

By using a brazing process we eliminated the need for gasketed or rolled joints commonly found in traditional exchangers. This allows for higher operating pressures and temperatures with no maintenance and no leaks. The corrugated plates easily handle highly viscous fluids, turbulent them for maximum efficiency. Corrosion resistant materials ensure a long operating life.

## Small size...Big impact

**Construction:**  
Our Brazed Plate Heat Exchangers are approved according to pressure equipment PED 2014/68/EU

**Mechanical Design:**  
Design pressures up to 30 Bar.  
Maximum design temperature up to 232°C.  
Minimum design temperature to -190°C.

**Materials:**  
Stainless Steel 316L plates. Copper brazed material.

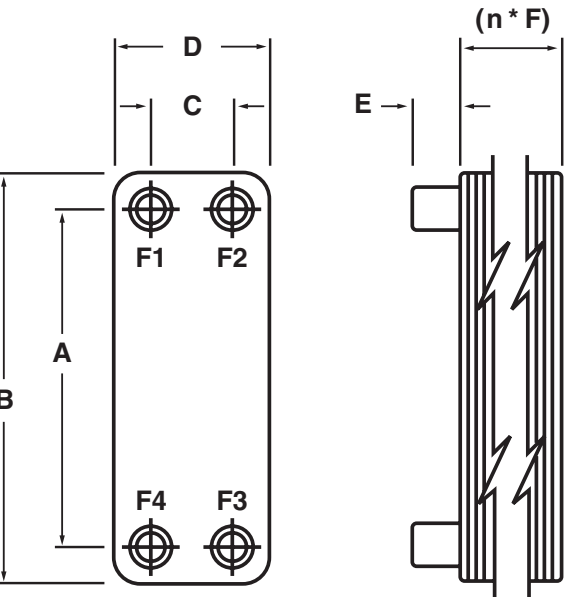
**Capacity:**  
Up to 50.40 l/sec and 32.52 m² of surface area.



**Mounting:**  
Reduce mounting costs with optional threaded studs or integral mounting bracket.

**Connections:**  
From 1/2 inch to 4 inch. Standard connection options include NPT, SAE Flanged and Sweat. Custom connections available.

# Copper/Nickel Heat Exchangers



## Typical Connection Locations (Side-1: F1 & F4, Side-2: F2 & F3)

- Typical Application (liquids or gases - no phase change)
- 1) For all models the F2 - F3 side has one extra channel, ie. BP 410-10 has 4 channels on the F1 - F4 side and 5 on the F2 - F3 side.
  - 2) Liquid applications should be plumbed in a counter-current, parallel, flow arrangement, (for example: Hot in at F1/Hot out at F4; Cold in at F3/Cold out at F2). Hot and cold side and in and out locations aren't critical as long as the piping is in a counter-current, parallel, flow arrangement. Unit may be mounted in any orientation.
  - 3) Connections may be on the front (ie. F1, F2, F3, F4) or back (ie. B1, B2, B3, B4) of the unit.

## Phase Change Applications

- 1) Units should be mounted in the vertical direction, similar to the figure above and plumbed with the vapor connection up and the liquid connection down on the phase change side see below.

Dimensions in mm  
n = number of plates

## Copper

| Model Type | a     | b     | c    | d    | e    | f     | g     | Connection   | Volume Liter/channel | Weight (kgs.)     | Max. # of plates |
|------------|-------|-------|------|------|------|-------|-------|--------------|----------------------|-------------------|------------------|
| BP400      | 171.8 | 214.5 | 41.9 | 80.7 | 24.1 | 1.98  | 10.2  | G3/4"        | 0.029                | 0.06 x n + 1.18   | 50               |
| BP405      | 354.8 | 397.5 | 41.9 | 80.7 | 24.1 | 1.98  | 10.2  | G3/4"        | 0.059                | 0.11 x n + 1.60   | 75               |
| BP410      | 249.7 | 309.6 | 50   | 112  | 24.1 | 2.462 | 10.2  | G1"          | 0.060                | 0.13 x n + 1.60   | 150              |
| BP411      | 249.7 | 309.6 | 50   | 112  | 24.1 | 2.462 | 10.2  | G1"          | 0.060                | 0.13 x n + 1.60   | 150              |
| BP412      | 249.7 | 309.6 | 50   | 112  | 24.1 | 2.462 | 10.2  | G1"          | 0.060                | 0.13 x n + 1.60   | 150              |
| BP415      | 465.7 | 525.4 | 50   | 112  | 24.1 | 2.462 | 10.2  | G1"          | 0.103                | 0.23 x n + 2.04   | 150              |
| BP422      | 518.5 | 616.8 | 91.9 | 190  | 48.2 | 2.921 | 10.2  | G2"          | 0.266                | 0.44 x n + 7.00   | 200              |
| BP423      | 518.5 | 616.8 | 91.9 | 190  | 48.2 | 2.921 | 10.2  | G2"          | 0.266                | 0.44 x n + 7.00   | 200              |
| BP424      | 518.5 | 616.8 | 91.9 | 190  | 48.2 | 2.921 | 10.2  | G2"          | 0.266                | 0.44 x n + 7.00   | 200              |
| BP432      | 622.3 | 892.1 | 211  | 430  | 88.8 | 2.898 | 31.02 | DN 80 PN 25  | 0.815                | 0.95 x n + 71.70  | 250              |
| BP433      | 863.5 | 1194  | 256  | 515  | 88.8 | 2.898 | 31.02 | DN 100 PN 25 | 1.220                | 1.47 x n + 111.60 | 250              |
| BP434      | 863.5 | 1194  | 256  | 515  | 88.8 | 2.898 | 31.02 | DN 100 PN 25 | 1.220                | 1.47 x n + 111.60 | 250              |
| BP435      | 863.5 | 1194  | 256  | 515  | 88.8 | 3.909 | 31.02 | DN 100 PN 25 | 1.220                | 1.47 x n + 111.60 | 180              |

| Condensers      |       |
|-----------------|-------|
| Vapor In:       | F1/B1 |
| Condensate Out: | F4/B4 |
| Liquid In:      | F3/B3 |
| Liquid Out:     | F2/B2 |

Standard Materials  
Cover Plate: ASTM 316L stainless steel  
Channel Plates: ASTM 316L stainless steel  
Connections: ASTM 316L stainless steel  
Brazing Material: Copper

Design Specifications Copper Brazed  
Design Pressure: 30 Bar.  
Design Temperature: 232°C.  
-190°C.

## Nickel

| Model Type | a     | b     | c    | d    | e    | f     | g  | Connection | Volume Liter/channel | Weight (kgs.)   | Max. # of plates |
|------------|-------|-------|------|------|------|-------|----|------------|----------------------|-----------------|------------------|
| BPN400     | 171.8 | 214.5 | 41.9 | 80.7 | 24.1 | 1.98  | 17 | G3/4"      | 0.029                | 0.06 x n + 1.91 | 50               |
| BPN410     | 249.7 | 309.6 | 50   | 112  | 24.1 | 2.462 | 17 | G1"        | 0.060                | 0.13 x n + 3.08 | 150              |
| BPN411     | 249.7 | 309.6 | 50   | 112  | 24.1 | 2.462 | 17 | G1"        | 0.060                | 0.13 x n + 3.08 | 150              |
| BPN412     | 249.7 | 309.6 | 50   | 112  | 24.1 | 2.462 | 17 | G1"        | 0.060                | 0.13 x n + 3.08 | 150              |
| BPN415     | 465.7 | 525.4 | 50   | 112  | 24.1 | 2.462 | 17 | G1"        | 0.103                | 0.23 x n + 4.58 | 150              |
| BPN422     | 518.5 | 616.8 | 91.9 | 190  | 48.2 | 2.921 | 17 | G2"        | 0.266                | 0.44 x n + 9.62 | 200              |
| BPN423     | 518.5 | 616.8 | 91.9 | 190  | 48.2 | 2.921 | 17 | G2"        | 0.266                | 0.44 x n + 9.62 | 200              |
| BPN424     | 518.5 | 616.8 | 91.9 | 190  | 48.2 | 2.921 | 17 | G2"        | 0.266                | 0.44 x n + 9.62 | 200              |

| Liquid to Liquid |    |
|------------------|----|
| Hot In:          | F1 |
| Hot Out:         | F4 |
| Cold In:         | F3 |
| Cold Out:        | F2 |

Standard Materials  
Cover Plate: ASTM 316L stainless steel  
Channel Plates: ASTM 316L stainless steel  
Connections: ASTM 316L stainless steel  
Brazing Material: Nickel

Design Specifications Copper Brazed  
Design Pressure: Model (400/41X) 30 Bar.  
Model (42X) 26.7 Bar.  
Design Temperature: 232°C.  
-190°C.

Brazed Plate Quick Selection Tables

Floor Heating\*      System Separation\*\*

| Model    | primary   | 70/50 C*              | 70/50 C* | 55/49 C* | 55/40 C* | 80/60 C** | 80/60 C** |
|----------|-----------|-----------------------|----------|----------|----------|-----------|-----------|
|          | secondary | 40/50 C               | 35/45 C  | 40/45 C  | 30/40 C  | 50/70 C   | 55/75 C   |
|          | Part #    | Heating Capacity (kW) |          |          |          |           |           |
| BP400-10 |           | 10                    | 11       | 5        | 6        | -         | -         |
| BP400-20 |           | 22                    | 21       | 11       | 16       | 7         | -         |
| BP400-30 |           | 30                    | 30       | 15       | 26       | 11        | -         |
| BP400-40 |           | 36                    | 36       | 18       | 35       | 15        | -         |
| BP410-10 |           | 14                    | 14       | 7        | 14       | 8         | -         |
| BP410-20 |           | 28                    | 28       | 14       | 28       | 20        | 4         |
| BP410-30 |           | 40                    | 40       | 20       | 40       | 33        | 6         |
| BP410-40 |           | 52                    | 52       | 26       | 52       | 45        | 8         |
| BP410-50 |           | 62                    | 62       | 31       | 62       | 57        | 10        |
| BP410-60 |           | 72                    | 72       | 36       | 72       | 69        | 13        |
| BP405-10 |           | -                     | -        | -        | -        | 14        | 4         |
| BP405-20 |           | -                     | -        | -        | -        | 30        | 10        |
| BP405-30 |           | -                     | -        | -        | -        | 44        | 15        |
| BP405-40 |           | -                     | -        | -        | -        | 56        | 21        |
| BP405-50 |           | -                     | -        | -        | -        | 66        | 26        |
| BP415-10 |           | -                     | -        | -        | -        | 16        | 8         |
| BP415-14 |           | -                     | -        | -        | -        | 24        | 14        |
| BP415-20 |           | -                     | -        | -        | -        | 36        | 20        |
| BP415-24 |           | -                     | -        | -        | -        | 44        | 26        |
| BP415-30 |           | -                     | -        | -        | -        | 55        | 33        |

All tables based on maximum pressure drop of 20 kpa

District Heating

| Model    | primary   | 130/55 C*             | 130/55 C* | 130/60 C* | 110/55 C* | 110/55 C** | 110/60 C** |
|----------|-----------|-----------------------|-----------|-----------|-----------|------------|------------|
|          | secondary | 50/90 C               | 50/70 C   | 55/80 C   | 50/90 C   | 50/70 C    | 55/80 C    |
|          | Part #    | Heating Capacity (kW) |           |           |           |            |            |
| BP400-10 |           | -                     | 7         | 5         | -         | -          | -          |
| BP400-20 |           | 6                     | 17        | 13        | -         | 11         | 7          |
| BP400-30 |           | 9                     | 27        | 20        | -         | 18         | 11         |
| BP400-40 |           | 12                    | 37        | 28        | -         | 25         | 15         |
| BP410-10 |           | 8                     | 22        | 17        | -         | 15         | 9          |
| BP410-20 |           | 19                    | 52        | 40        | 8         | 35         | 22         |
| BP410-30 |           | 30                    | 80        | 62        | 13        | 57         | 35         |
| BP410-40 |           | 41                    | 103       | 87        | 18        | 76         | 48         |
| BP410-50 |           | 53                    | 123       | 110       | 23        | 95         | 61         |
| BP410-60 |           | 65                    | 140       | 135       | 28        | 115        | 74         |
| BP405-10 |           | 20                    | -         | 21        | 8         | 17         | 21         |
| BP405-20 |           | 48                    | -         | 41        | 20        | 32         | 41         |
| BP405-30 |           | 75                    | -         | 60        | 31        | 46         | 58         |
| BP405-40 |           | 105                   | -         | 75        | 43        | 58         | 73         |
| BP405-50 |           | 135                   | -         | 87        | 55        | 67         | 85         |
| BP415-10 |           | 40                    | -         | 26        | 18        | 20         | 25         |
| BP415-14 |           | 57                    | -         | 35        | 29        | 28         | 35         |
| BP415-20 |           | 82                    | -         | 50        | 45        | 40         | 51         |
| BP415-24 |           | 95                    | -         | 60        | 55        | 48         | 60         |
| BP415-30 |           | 120                   | -         | 75        | 71        | 59         | 74         |

All tables based on maximum pressure drop of 20 kpa

Potable Water Heating\*      Solar/Potable Water Heating\*\*      Solar/Swimming Pool\*\*\*

| Model    |           |                       |          |          |          | 38% PG    | 38% PG     |
|----------|-----------|-----------------------|----------|----------|----------|-----------|------------|
|          | primary   | 70/50 C*              | 70/25 C* | 65/40 C* | 55/30 C* | 65/40 C** | 40/25 C*** |
|          | secondary | 10/60 C               | 10/60 C  | 10/60 C  | 10/50 C  | 10/60 C   | 15/25 C    |
|          | Part #    | Heating Capacity (kW) |          |          |          |           |            |
| BP400-10 |           | 6                     | -        | -        | -        | -         | -          |
| BP400-20 |           | 14                    | -        | -        | -        | -         | -          |
| BP400-30 |           | 24                    | -        | 6        | -        | -         | 8          |
| BP400-40 |           | 33                    | -        | 8        | -        | -         | 11         |
| BP410-10 |           | 18                    | -        | 5        | -        | -         | 7          |
| BP410-20 |           | 45                    | 6        | 13       | 8        | 7         | 16         |
| BP410-30 |           | 73                    | 10       | 21       | 12       | 12        | 25         |
| BP410-40 |           | 96                    | 14       | 28       | 16       | 16        | 34         |
| BP410-50 |           | 116                   | 18       | 36       | 21       | 20        | 43         |
| BP410-60 |           | 135                   | 21       | 37       | 25       | 24        | 52         |
| BP405-10 |           | -                     | 6        | 13       | 7        | 7         | -          |
| BP405-20 |           | -                     | 14       | 32       | 18       | 18        | -          |
| BP405-30 |           | -                     | 24       | 51       | 29       | 29        | -          |
| BP405-40 |           | -                     | 33       | 68       | 40       | 40        | -          |
| BP405-50 |           | -                     | 43       | 80       | 51       | 51        | -          |
| BP415-10 |           | -                     | 13       | 20       | 16       | 16        | -          |
| BP415-14 |           | -                     | 20       | 30       | 26       | 26        | -          |
| BP415-20 |           | -                     | 32       | 44       | 40       | 40        | -          |
| BP415-24 |           | -                     | 40       | 54       | 51       | 51        | -          |
| BP415-30 |           | -                     | 50       | 68       | 65       | 65        | -          |

All tables based on maximum pressure drop of 20 kpa



# Gasketed Plate Heat Exchangers

## Lowara technology offers maximum efficiency in less space, with outstanding application flexibility

Innovative plate design allows GPX heat exchangers to provide more heat transfer using less space. They perform with one-third to one-fifth the surface area of conventional shell and tube heat exchangers designed for the same application.

- GPX models have higher surface area to volume ratios than conventional shell and tube heat exchangers
- GPX offers superior heat transfer coefficients compared to shell and tube heat exchangers
- GPX offers “true” countercurrent flow, which maximizes the mean temperature difference between the fluids

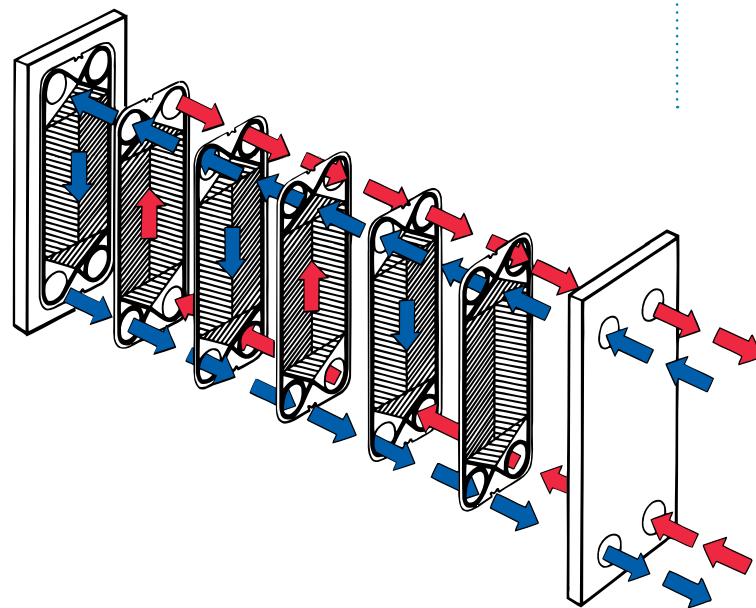
## Advanced GPX system offers superior efficiency

GPX uses a combination of chevron-style heat transfer plates sequenced between a frame plate and pressure plate. The heat transfer plates have holes at the four corners that form a header, which distributes the respective fluids to the opposite sides of each plate when the plates align. The fluids are confined to the heat transfer surface of the plate or the port, as appropriate, with elastomer gaskets. Counter-current flow is obtained with a given fluid travelling up one side of a plate and the other fluid down the opposite side of the plate. The plates chevron patterns create metal-to-metal contact points between adjacent plates for added strength. This allows differential pressures equal to the design pressure. The entire assembly is held together with tightening bolts. Carry/guide bars are used to obtain the proper alignment.

## Typical applications

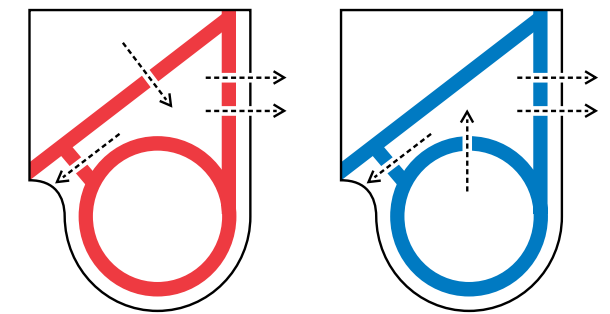
Their efficient design allows the heat exchanger to be used in a variety of applications and installations, including:

- District Heating and Cooling
- Thermal Storage
- Heat Pumps
- HVAC



## Double gasket prevents cross-contamination

GPX models include a one-piece molded gasket. This standard gasket is designed with two rings to confine each fluid to the appropriate port region of the plate, a field region of the gasket to confine the fluid to the heat transfer area of the plate and a vented region in between. This design creates a double gasket with a leak path to atmosphere through the vented region to prevent any cross-contamination of the fluids due to a gasket failure. A leak due to a gasket failure is detected as a leak to atmosphere prior to any chance for cross-contamination. Lowara offers a variety of glueless and glued gaskets.



Double gasketing prevents cross-contamination.



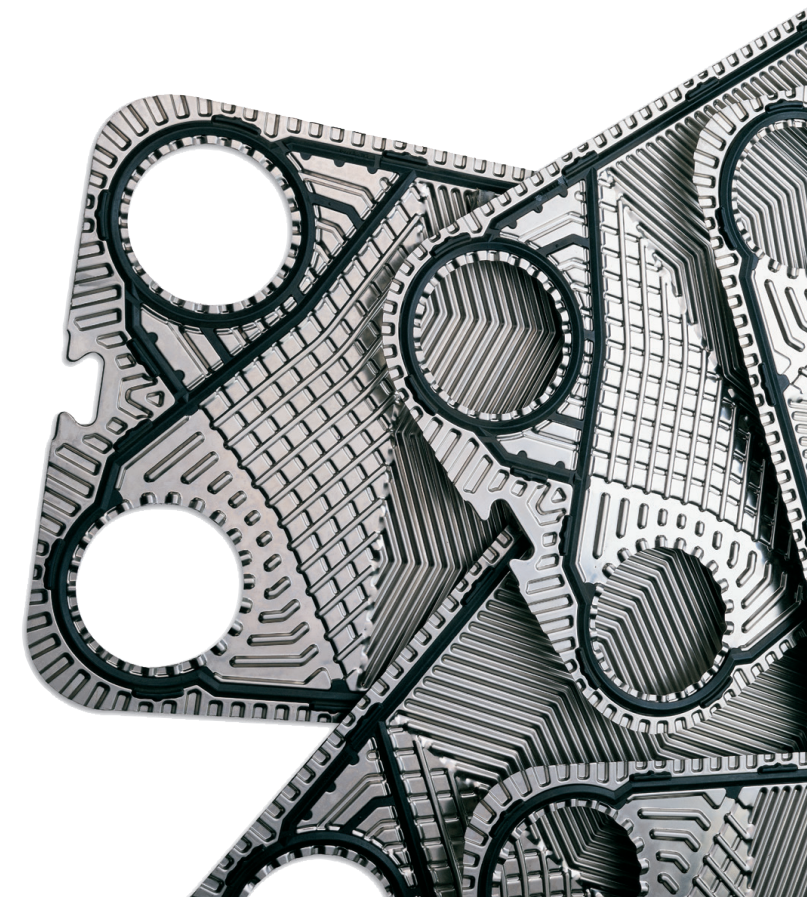
Glueless gasket option.

## Advanced system offers superior efficiency

A combination of chevron-style heat transfer plates sequenced between a frame plate and pressure plate. The heat transfer plates have holes at the four corners that form a header, which distributes the respective fluids to the opposite sides of each plate when the plates align. The fluids are confined to the heat transfer surface of the plate or the port, as appropriate, with elastomer gaskets.

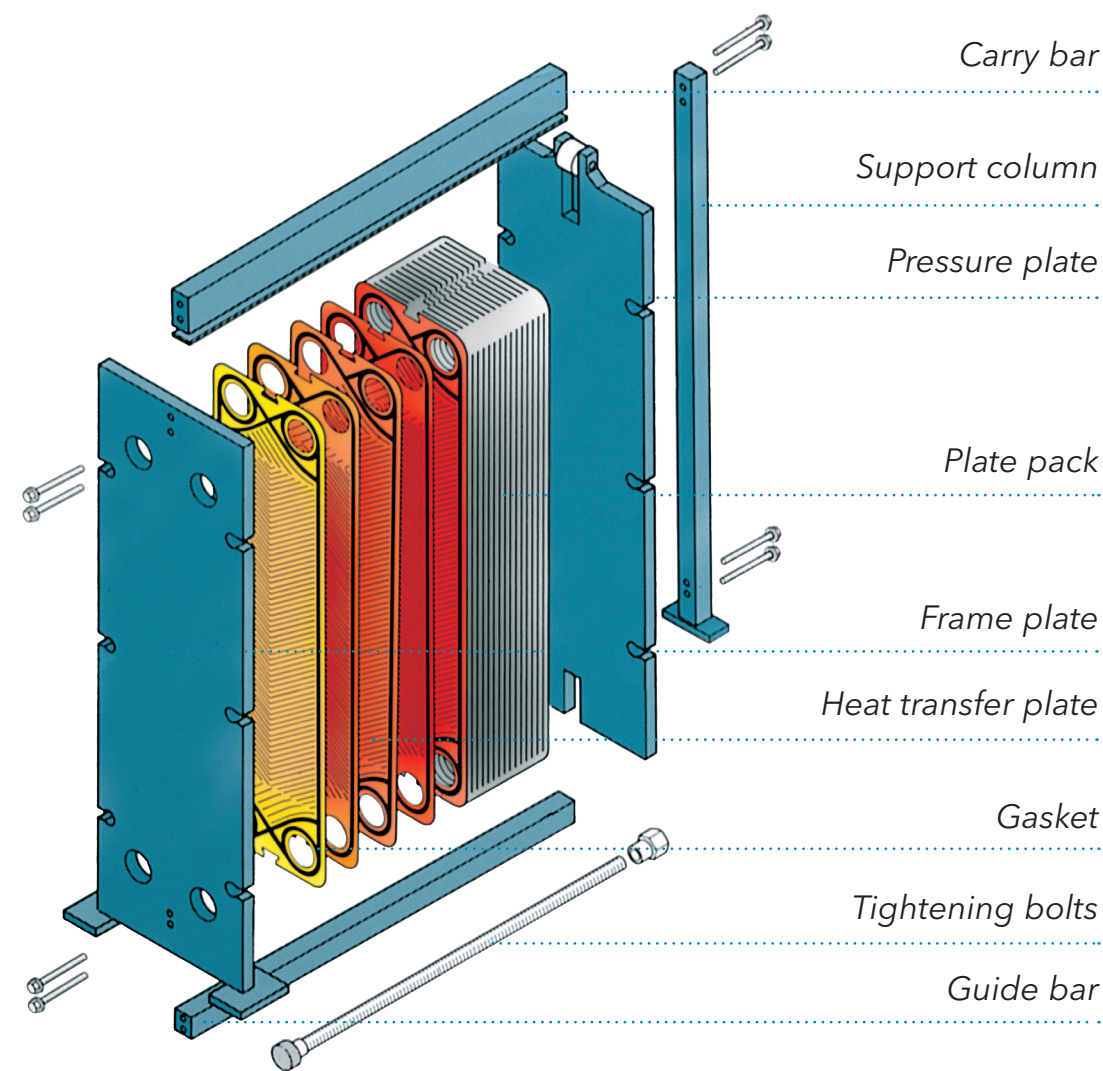
Counter-current flow is obtained with a given fluid travelling up one side of a plate and the other fluid down the opposite side of the plate.

The plates chevron patterns create metal-to-metal contact points between adjacent plates for added strength. This allows differential pressures equal to the design pressure. The entire assembly is held together with tightening bolts. Carry/guide bars are used to obtain the correct alignment.



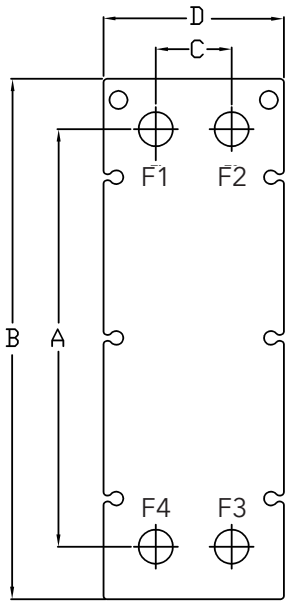
Modular design allows for easy installation and maintenance

The GPX design makes assembly, inspection and cleaning easy.



- Easy to install and move
- Readily expandable and easy to inspect or clean
- With studded connection, no welding is required
- Opening or closing the unit does not require disconnecting the piping
- No special tools needed to tighten plate pack
- Tightening bolt design allows opening and closing the unit from frame plate
- GPX has vertical flow, so inlet and outlet connections are above and below each other and on the same plane for easy installation
- Studded connections withstand higher piping loads than nozzles

Gasketed Plate Heat Exchangers



Typical Connection Locations  
(Side-1: F1 & F4, Side-2: F2 & F3)

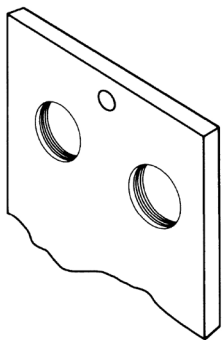
Typical Application (liquids or gases - no phase change)

- 1) Liquid applications should be plumbed in a counter-current, parallel, flow arrangement, (for example: Hot in at F1/Hot out at F4; Cold in at F3/Cold out at F2). Hot and cold side and in and out locations aren't critical as long as the piping is in a counter-current, parallel, flow arrangement.
- 2) Connections may be on the front (ie. F1, F2, F3, F4) or back (ie. B1, B2, B3, B4) of the unit.

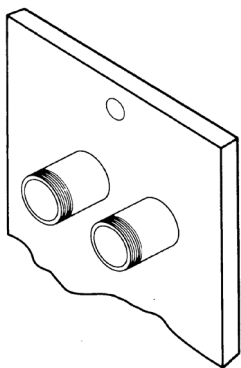
Dimensions in mm

| Model Type | a    | b    | c   | d   | Port Size | Connection Type            |
|------------|------|------|-----|-----|-----------|----------------------------|
| L4         | 381  | 481  | 70  | 205 | 1"        | Threaded                   |
| L7         | 394  | 572  | 126 | 305 | 2"        | Threaded                   |
| L14        | 694  | 865  | 126 | 300 | 2"        | Threaded                   |
| L19        | 700  | 1125 | 192 | 460 | 2 1/2"    | Threaded                   |
| L21        | 719  | 1190 | 225 | 520 | 100mm     | Studded Port for DN Flange |
| L22        | 719  | 1190 | 225 | 520 | 100mm     | Studded Port for DN Flange |
| L47        | 1365 | 1835 | 225 | 520 | 100mm     | Studded Port for DN Flange |
| L62        | 1292 | 1894 | 310 | 655 | 150mm     | Studded Port for DN Flange |
| L86        | 1694 | 2296 | 310 | 655 | 150mm     | Studded Port for DN Flange |

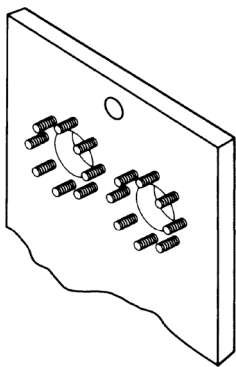
Connection Options



Standard threaded connection



Threaded connection with alloy nozzle



Standard studded connection

Technical Data

Other options are available, please contact your local sales office.

| Technical Data                           |                                                            |
|------------------------------------------|------------------------------------------------------------|
| Performance: Maximum Flowrate            | 1889 kg/sec                                                |
| Max. Heat Transfer Area                  | 4430 m <sup>2</sup>                                        |
| Connections: BSP Nozzles - Size (Inches) | 1 Inch to 2.5 Inch                                         |
| Connections: DIN Studded Size (mm)       | 100mm to 150mm (up to 600mm by request)                    |
| Frame Material                           | Primed and Epoxy Coated Carbon Steel                       |
| Plate Material                           | Stainless Steel, Titanium, Hastelloy™, Other Higher Alloys |
| Gasket Materials                         | Nitrile, EPDM, Viton™                                      |
| Frame Design Pressure                    | 10 Bar and 16 Bar Standard. Up to 31 Bar by request        |
| Design Temperatures                      | 0°C to 110°C (-40°C to 200°C by request)                   |
| Bolting Materials                        | Zinc Plated Carbon Steel                                   |
| Plate Pack Shroud                        | Aluminum with option for Stainless Steel                   |

Thermal Heat Transfer Selection Software

From selection to production all the expertise and technical support you require when choosing high quality Plate Heat Exchangers is here, based in the United Kingdom.

We provide a pump selection programme to assists in the correct selection of Thermal Heat Transfer products with from the Lowara range.

With ESP Thermal we can ensure that the selections made both from a technical and commercial aspect are correct and more importantly meet the customers needs.



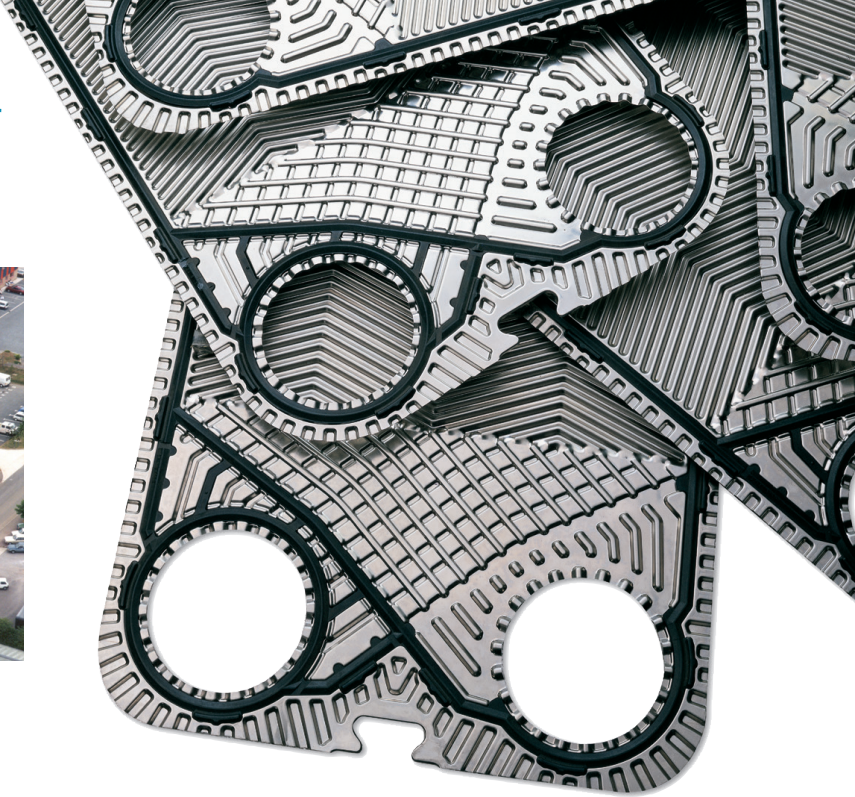
Xylem Water Solutions, Axminster In-house production facility



- Extensive component stock to meet customers delivery requirements
- Products built to order
- All products tested in-house

Renowned for its progressive research and development, Xylem's Lowara brand is a market leader in the advancement of pumping and circulating solutions for the residential and commercial markets. All hydraulic pumps, drives and packages are developed with low lifecycle costs in mind, as well as high efficiency, ease of installation and ultimately a long service life.

With the ability to tackle even the most demanding of clean and wastewater management applications, the Lowara brand operates across multiple market segments, offering high quality solutions for water, wastewater, HVAC and fire protection.



# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services, and agricultural settings. With its October 2016 acquisition of Sensus, Xylem added smart metering, network technologies and advanced data analytics for water, gas and electric utilities to its portfolio of solutions. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to [xyleminc.com](http://xyleminc.com)



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## **Xylem Maintenance Agreements UK**

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## **Xylem Service & Rental UK**

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