



## Heat exchangers BWT-DW

Hydraulic drives and lubricating systems are indispensable in machine construction, raw material production, navigation and many other areas.

Both as a power transfer medium and lubricant oil is heated by friction losses during operation.

Since the viscosity of the oil changes along with the temperature, precise temperature stabilisation using coolers is a vital requirement for systems and drives for consistent power. In addition to the unlimited supply of ambient air, water is also used as a coolant. The advantage of water is the low susceptibility to seasonal temperature fluctuations and large companies often use it as a central circulation coolant.

BWT plate heat exchangers are a particularly efficient solution in these cases. They're extremely compact, practically maintenance-free and easy to install.

Particularly suited for corrosive mediums

Equally distributed turbulent flow

High exchange efficiency

Low water consumption

Little installation space required

Maintenance-free

Broad temperature range

Easy installation



## Introduction and description

### Why coolers?

There are basically two main concepts in the development of fluid power systems.

One is to design systems without using a cooler, and if operational conditions show that the system needs a cooler, install it later at additional costs. This understandably then often calls for compromises, making the system more expensive.

The other concept recognizes that a system originally designed with an integrated cooler needs less installation space and is a better choice with respect to construction and system costs.

### Why Bühler?

Using an oil/water cooler nowadays requires paying great attention to low water consumption. The tube bundle heat exchangers Bühler had been selling for decades could not meet this requirements, resulting in our search for a new exchanger concept for hydraulics.

Soldered plate heat exchangers meet these requirements outstandingly and further offer other advantages such as requiring little installation space and the high pressure resistance.

Together with a well-known manufacturer, Bühler implemented these findings in a comprehensive product line customised for the requirements in fluid control.

If our standard range of products does not includes the right solution for your application, we will gladly develop a custom solution for you.

Use the data in this leaflet to determine a suitable cooler for your application. However, we do recommend using our calculator to configure your cooler. This will allow you to optimise it whilst incorporating various parameters.

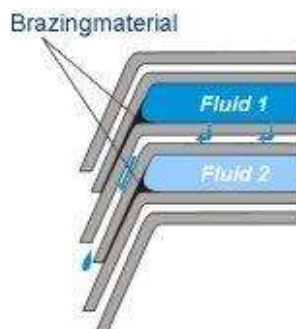
### Typical application

In the event of a plate break in a regular plate heat exchanger, a mixing of products is the logical consequence. Double-Wall-plate heat exchangers are used where product mixing must absolutely be prevented due to the reactions which would occur. Each double wall plate consists of two identical individual plates, laser welded together around the clearance holes. In the event of a plate break, the medium will leak in between the two individual plates.

**Incorrect installation or operation could result in a defect of the welded joint at the connection, hence media mixing. Please refer to operating manual.**

The leak is usually detected quickly and the damage can be corrected. In some countries, double-wall plate heat exchangers are used for service water warming in district heating systems, among other things. Double-wall plate heat exchangers are further required in instances where the products mixing could result in dangerous chemical reactions, e.g. for cooling transformer oil.

The arrows indicate the flow of mediums in a plate break:



Areas of application: Pharmaceutical industry, nuclear technology, petrochemistry, chemical industry, heating potable water, food industry.

## Construction and application

BWT plate heat exchangers are made from patterned stainless steel plates. The direction of the pattern varies from plate to plate, yielding a large number of contacts on the back of the pattern. When the plates are soldered the contacts also connect, forming an extremely compact, pressure-resistant set of plates. And yet virtually the entire material area is available for heat exchange.

## Function

Compared to other systems the interior geometry of the BWT ensures a turbulent flow, yielding high heat transfer coefficients when using the limits for low flow rates, thus flow speeds, in the configuration. This excludes Zones with a low speed, maintaining an extremely equally distributed flow across the entire exchanger surface. The materials used result in dense, smooth exchanger plate surfaces, significantly reducing the risk of possible corrosion.

These design features of the BWT plate heat exchangers virtually eliminate the risk of deposits within the exchanger.

## Planning information

### Set-up

The coolers should be installed providing easy accessible and visibility. Any installation position is permitted and may be adapted to the installation conditions. However, the cooler should not be installed on its back.

Secure the plate heat exchanger with the bracket sold as an accessory. The connection lines must be installed free from tension and vibration. We recommend installing tubes or compensators.

Prevent freezing when installed outdoors.

## Approvals

BWT plate coolers are approved by the following authorities:

|             |   |
|-------------|---|
| Sweden      | Statens Anläggningsprovning (SA)                        |
| Norway      | Kjelkontrollen  |
| Canada      | Canadian Standard Association (CSA)                     |
| Germany     | Technischer Überwachungsverein (TÜV)                    |
| USA         | Underwriters Laboratories (UL)                          |
| Finland     | Teknillinen Tarkastuskeskus (TK)                        |
| Switzerland | Schweizerischer Verein des Gas- und Wasserfaches (SVGW) |
| EU          | TRB801 No. 25   |

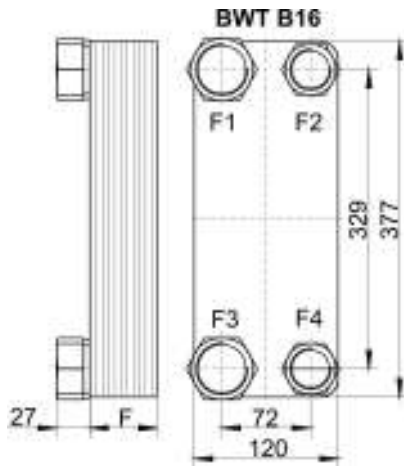
Bühler is ISO 9001 certified

## Technical Data BWT-DW

### Technical Data

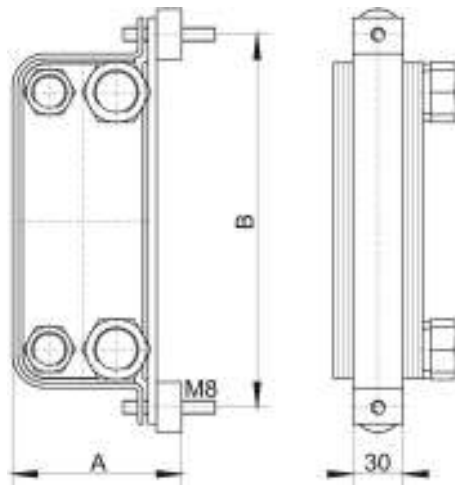
|                                      |                                   |
|--------------------------------------|-----------------------------------|
| <b>Material</b>                      | Stainless steel 1.4401, Cu 99.9 % |
| <b>Operating pressure</b><br>static: | max. 16 bar                       |
| <b>Operating oil temperature</b>     | +155 °C                           |

**B16**



| Type          | Item no.  | F (mm) | Oil connection F3, F1 | Water connection F2, F4 | Weight (kg – net) | Volume (Litre) |
|---------------|-----------|--------|-----------------------|-------------------------|-------------------|----------------|
| BWT B16x010DW | 3416010DW | 30     | G 3/4 36 mm           | G 3/4 36 mm             | 4.0               | 0.6            |
| BWT B16x020DW | 3416020DW | 50     | G 3/4 36 mm           | G 3/4 36 mm             | 6.2               | 1.2            |
| BWT B16x030DW | 3416030DW | 70     | G 3/4 36 mm           | G 3/4 36 mm             | 8.4               | 1.8            |
| BWT B16x040DW | 3416040DW | 90     | G 3/4 36 mm           | G 3/4 36 mm             | 10.6              | 2.4            |
| BWT B16x050DW | 3416050DW | 110    | G 3/4 36 mm           | G 3/4 36 mm             | 12.8              | 3.0            |
| BWT B16x060DW | 3416060DW | 130    | G 3/4 36 mm           | G 3/4 36 mm             | 15.0              | 3.6            |
| BWT B16x070DW | 3416070DW | 150    | G 3/4 36 mm           | G 3/4 36 mm             | 17.2              | 4.2            |

**Mounting bracket**



| Type | Item no. | A   | B   |
|------|----------|-----|-----|
| BB16 | 34BB16   | 148 | 411 |