

# Alfa Laval PHE Select

Quick reference guide for gasketed, brazed and fusion-bonded plate heat exchangers





Use Alfa Laval PHE Select to find your brazed, gasketed, or fusion-bonded plate heat exchanger. This is the tool that will help you run calculations and get results in a simple and quick way.

Whether you are a consultant, a planner or someone who needs to specify a plate heat exchanger for 1-phase HVAC applications with water and glycols – in PHE Select you will be able to select heat exchangers based on your requirements.

Quick access, no approval needed to use it, just a simple login required. The brazed and gasketed plate heat exchangers are certified by AHRI, a third party certification program, assuring performance in accordance with the calculation in PHE Select.

## Content

Recommended browsers and feedback function .....	3
Login .....	3
Settings .....	4
Make a selection of a gasketed plate heat exchanger .....	5
Make a selection of a brazed or fusion-bonded plate heat exchanger .....	8
Save calculation, find folders and open a saved calculation .....	11

## Recommended browsers and feedback function

### Recommended browsers for PHE Select

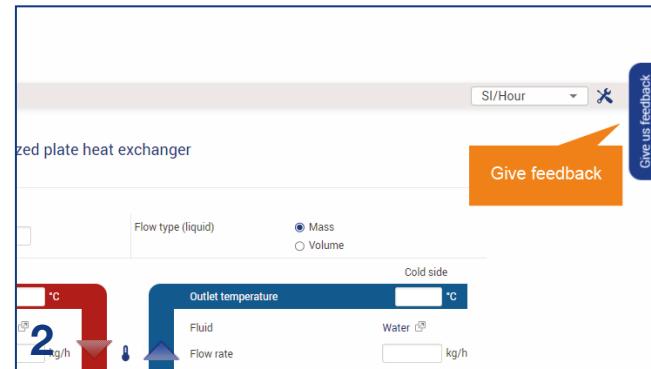


Google Chrome



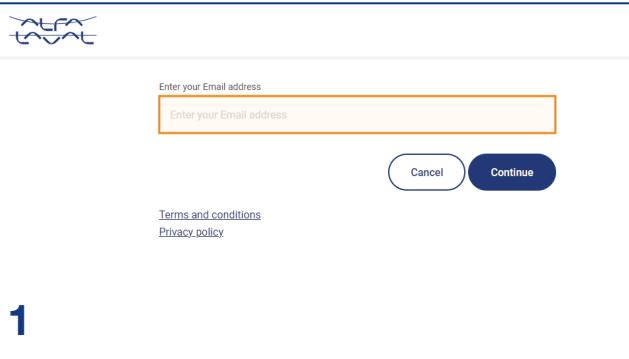
Microsoft Edge

1



1. For the best experience when using Alfa Laval PHE Select, we recommend that you use Google Chrome or Microsoft Edge.
2. Should you experience any issues or have ideas on what you want to see in the tool, use the **Feedback** button to let us know.

## Login



1

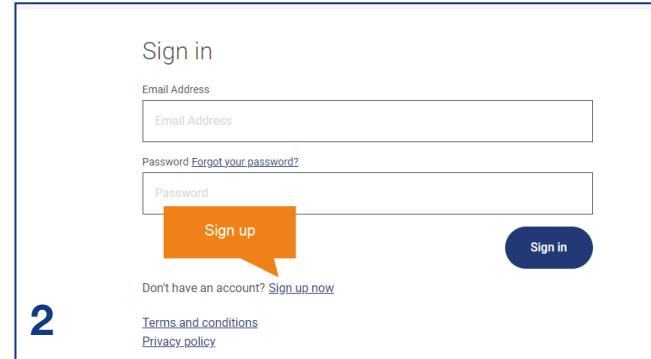
Enter your Email address

Enter your Email address

Cancel Continue

Terms and conditions

Privacy policy



2

Sign in

Email Address

Email Address

Password [Forgot your password?](#)

Sign up

Sign in

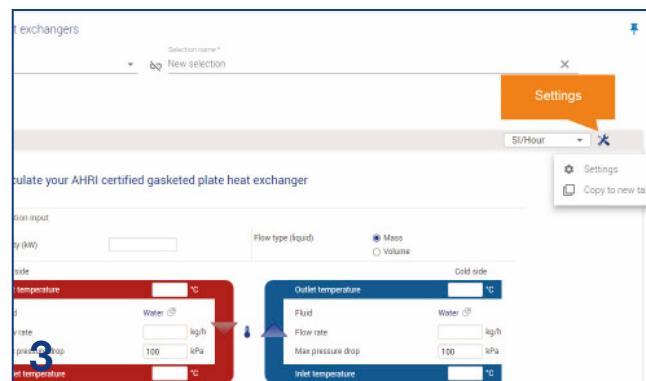
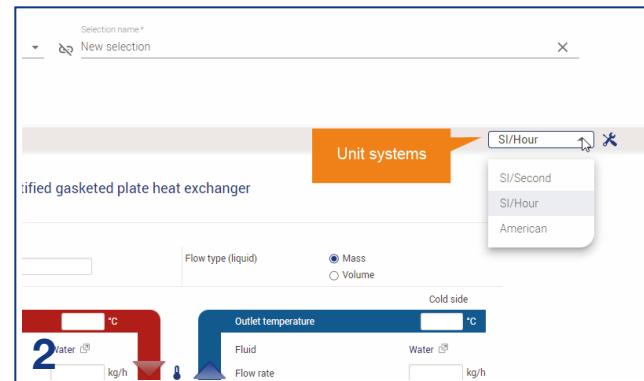
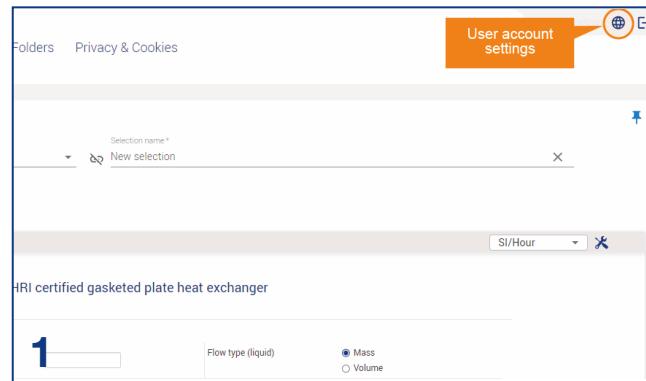
Don't have an account? [Sign up now](#)

Terms and conditions

Privacy policy

1. Enter your email address to login to Alfa Laval PHE Select if you already have an account.
2. If you don't have an account, you can easily create one by clicking on **Sign-up now** and follow the instructions to set-up a new account.

## Settings



1. The first time you login you enter your Country and Company. These can be changed later by clicking on **User Account Settings**. Here you can also set your preferred number format.
2. The default **Unit System** is set based on your country but it can be changed anytime during the calculation.
3. In **Settings** you can set the general defaults for the technical printouts such as format and language, and if you want to save a different default Unit system for future logins.

## Make a selection of a gasketed plate heat exchanger

Calculate your AHRI certified gasketed plate heat exchanger

Calculation input

Capacity (kW)  Flow type (liquid)  Mass  Volume

Hot side  Cold side

Inlet temperature  °C

Fluid hot side  Water  kg/h  100 kPa

Outlet temperature  °C

Fluid cold side  Water  kg/h  100 kPa

Inlet temperature

Max pressure drop  100 kPa

Outlet temperature  °C

Product input  Design  Rating  Calculate result list

1

Calculate your AHRI certified gasketed plate heat exchanger

Calculation input

Capacity (kW)  0.000 kW - 70 337.200 kW Flow type (liquid)  Mass  Volume

Hot side  Cold side

Inlet temperature  °C

Fluid  Water  kg/h  100 kPa

Flow rate  kg/h  100 kPa

Max pressure drop  100 kPa

Outlet temperature  °C

Fluid  Water  kg/h  100 kPa

Flow rate  kg/h  100 kPa

Max pressure drop  100 kPa

Inlet temperature  °C

Product input  Design  Rating  Calculate result list

2

Calculate your AHRI certified gasketed plate heat exchanger

Calculation input

Capacity (kW)  15 000 Flow type (liquid)  Mass  Volume

Hot side  Cold side

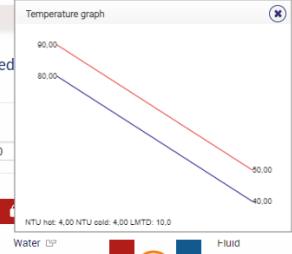
Inlet temperature  °C

Fluid  Water  kg/h  323 267

Flow rate  kg/h  100

Max pressure drop  100 kPa

Outlet temperature  °C

Temperature graph 

Product input  Design  Rating  Calculate result list

3

Sizing  Results

Product input  Outlet temperature  60.00 °C Inlet temperature

Plate material  ALLOY 304

System input  Inlet/outlet arrangement

Max design temperature (°C)  90  80

Min design temperature (°C)  0  0

Design pressure (bar)  10.0  10.0

Max operating temperature (°C)  90  80

Min operating temperature (°C)  50  40

Max operating pressure (bar)  10.0  10.0

Pressure vessel approval  PED

For installation in  Sweden Supply from region  Calculate result list

4

System input  Product input  Plate material  ALLOY 304

System input  Inlet/outlet arrangement

Max design temperature (°C)  90  80

Min design temperature (°C)  0  0

Design pressure (bar)  10.0  10.0

Max operating temperature (°C)  90  80

Min operating temperature (°C)  50  40

Max operating pressure (bar)  10.0  10.0

Pressure vessel approval  PED

For installation in  Sweden Supply from region  Calculate result list

5

System input  Inlet/outlet arrangement

ALLOY 304

System input  Inlet/outlet arrangement

Max design temperature (°C)  90  80

Min design temperature (°C)  0  0

Design pressure (bar)  16.0  16.0

Max operating temperature (°C)  90  80

Min operating temperature (°C)  50  40

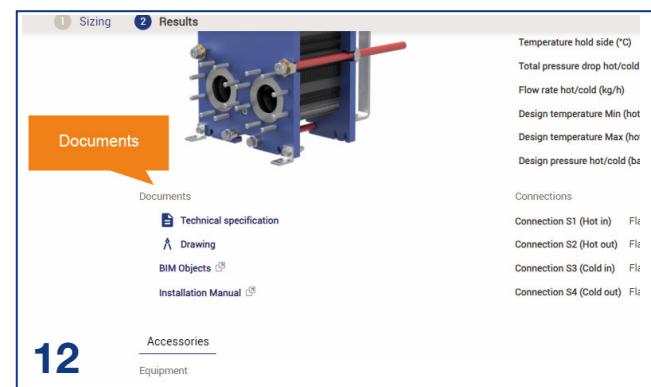
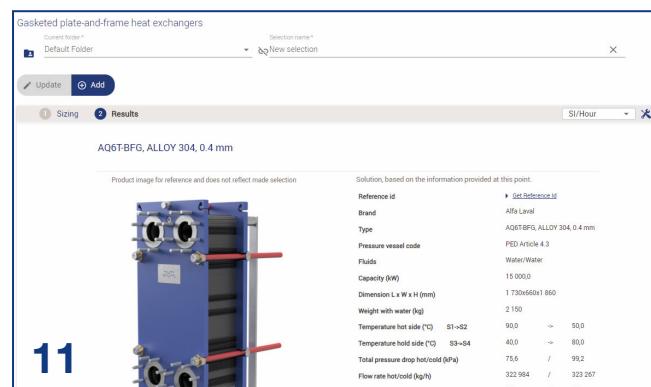
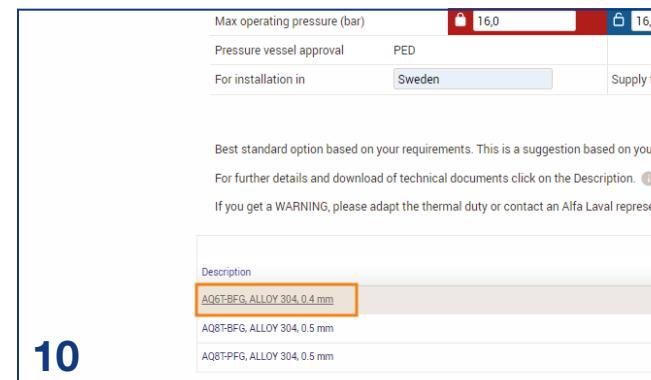
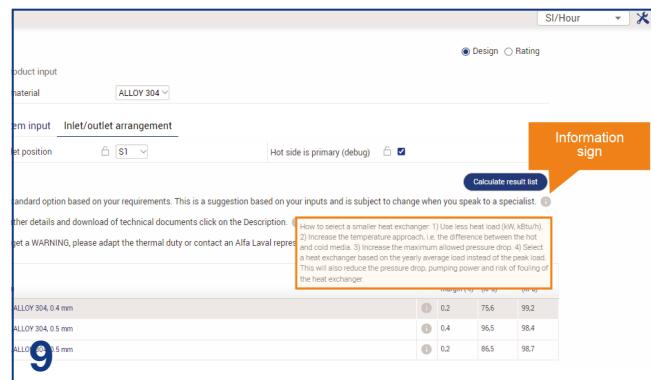
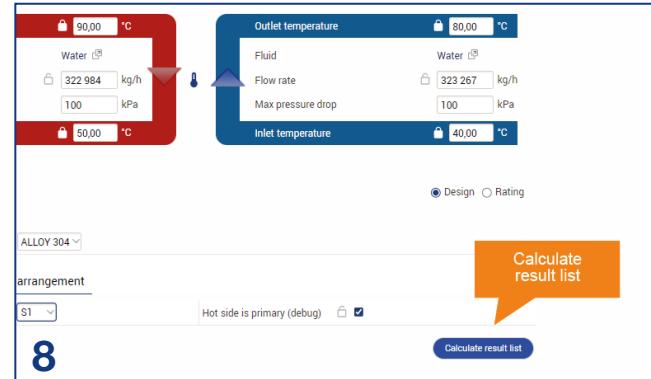
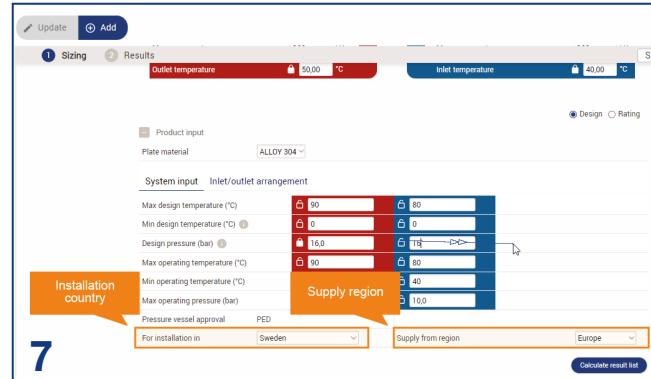
Max operating pressure (bar)  16.0  16.0

Pressure vessel approval  PED

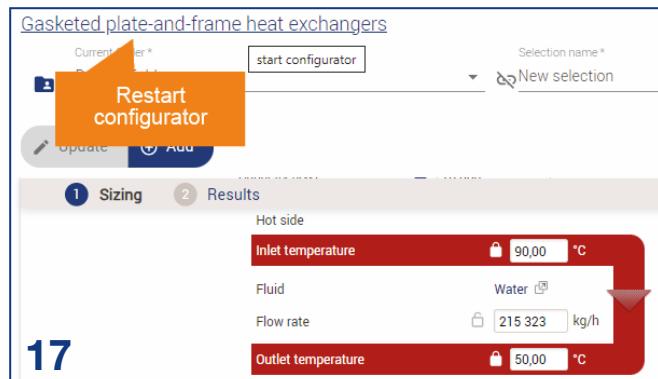
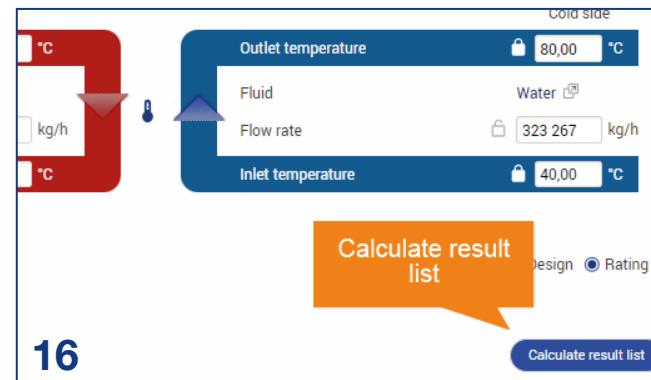
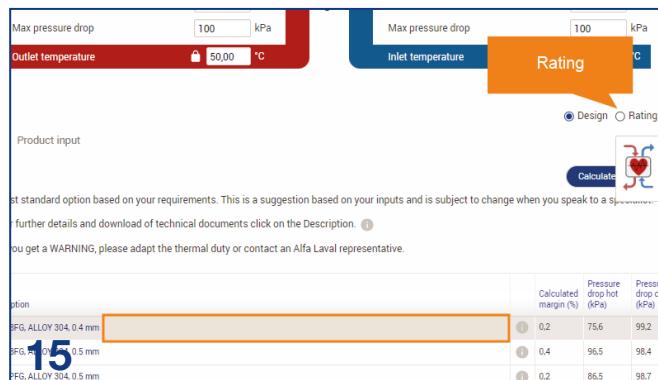
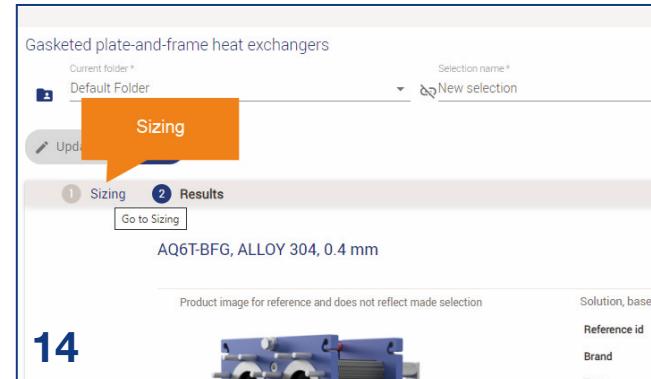
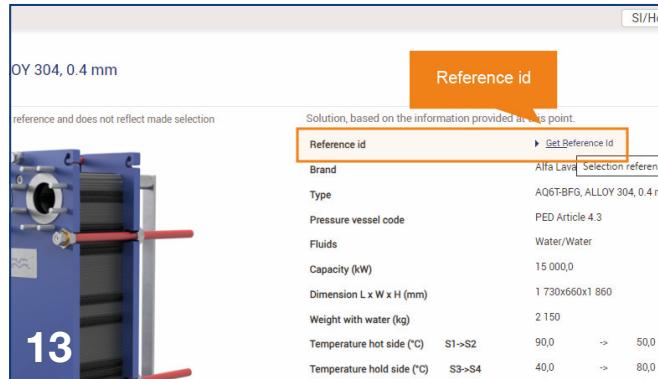
For installation in  Sweden Supply from region  Calculate result list

6

1. Start by selecting **Fluid**. Ethanol glycol, seawater, propenol glycol and water are the available fluids to calculate for gasketed plate heat exchangers with AHRI performance certification.
2. Based on your duty, simply fill in 5 out of the 7 required inputs, the remaining two are calculated automatically.
3. You can click on the **Thermometer** icon to see the temperature graph.
4. Change plate material suitable for your application if needed. Click on **Product input** and then **Plate material** and make the change from the drop-down menu.
5. In **System input** you can make modifications to the data you have added.
6. If you have a preference of hot inlet position you can change it in **Inlet/outlet arrangement**, default is set to S1 which is located in the upper right corner of the heat exchanger.



- With the installation country and supply from region correctly set, you will ensure to get a selection of items with relevant pressure vessel approvals and connection standards.
- Press **Calculate result list** and you will get a list of up to 3 suitable items based on your input, all with the resulting excess surface margin and pressure drops presented.
- For an even more efficient and smaller gasketed plate heat exchanger, click on the **Information sign** to find some useful tips on how you can modify your input.
- To come to the result page, click on the **description text** of the heat exchanger you want to view the details for.
- In the Results' page you see the details of the selected heat exchanger and here you can add accessories such as insulation and drip-tray.
- In **Documents** you can download the technical specification, drawings (2D, 2D scale, 3D step and Revit), installation manual and for all sizes of Alfa Laval AQ heat exchangers there are generic BIM objects available, click the link and you will be redirected to BIM Objects' website.



13. Get the reference ID by clicking **Get reference id** link. The reference ID includes all relevant information about heat exchanger and the duty, and can be shared with your local Alfa Laval representative when you need support as well as for your final specification.
14. To calculate the surface margin and pressure drops for a different condition, go back to **Sizing**.
15. Click on the **empty space** on the row (not the heat exchanger name) and select **Rating**.
16. Change the conditions and click **Calculate result list** and the heat exchanger result will be updated with the new conditions.
17. To make a new design, restart by clicking on the **headline**.

## Make a selection of a brazed or fusion-bonded plate heat exchanger

Calculate your AHRI certified Brazed plate heat exchanger

Calculation input

Capacity (kW)  Flow type (liquid)  Mass  Volume

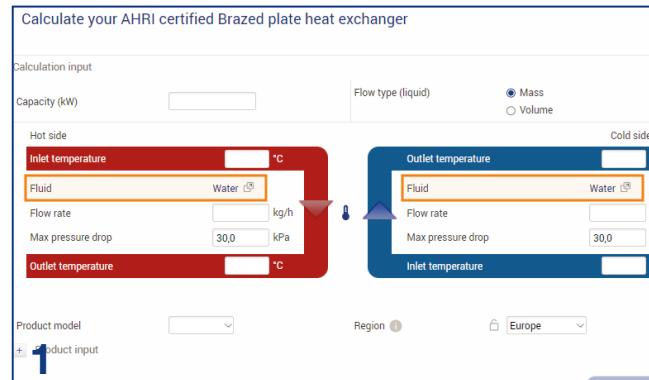
Hot side  Cold side

Inlet temperature  °C Fluid Water  Outlet temperature  °C

Flow rate  kg/h Max pressure drop  30,0 kPa

Product model  Region  Europe

**1** + Product input



Calculate your AHRI certified Brazed plate heat exchanger

Calculation input

Capacity (kW)  Flow type (liquid)  Mass  Volume

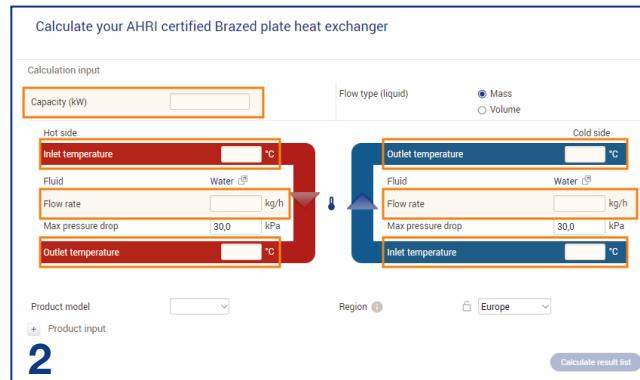
Hot side  Cold side

Inlet temperature  °C Fluid Water  Outlet temperature  °C

Flow rate  kg/h Max pressure drop  30,0 kPa

Product model  Region  Europe

**2** Calculate result list



Calculate your AHRI certified

Calculation input

Capacity (kW)  500,0 Region  Europe

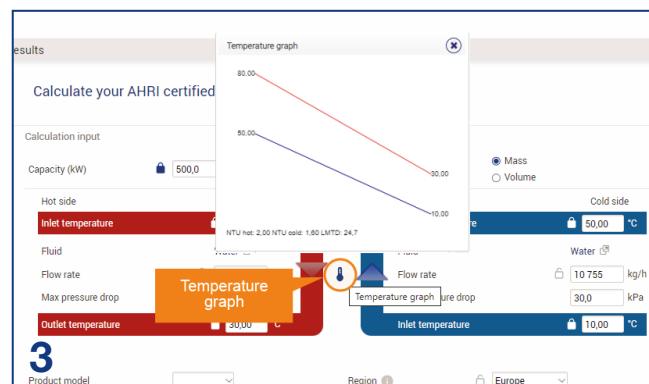
Hot side  Inlet temperature  °C NTU hot: 2,00 NTU cold: 1,80 LMTD: 24,7

Fluid Water  Water

Flow rate  kg/h Max pressure drop  30,0 kPa

Outlet temperature  °C

**3** Temperature graph



Calculate your AHRI certified

Calculation input

Capacity (kW)  80,00 °C Region  Europe

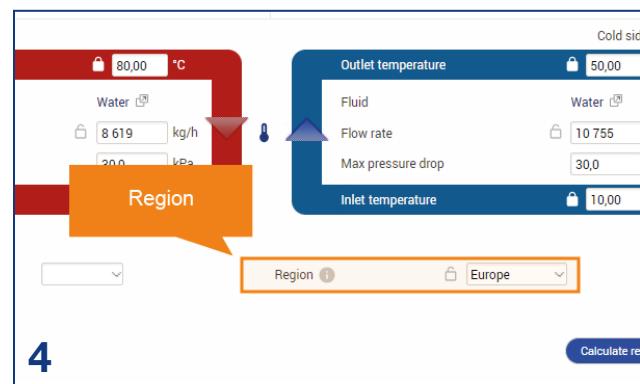
Hot side  Outlet temperature  50,00 °C

Fluid Water  Water

Flow rate  kg/h Max pressure drop  30,0 kPa

Inlet temperature  10,00 °C

**4** Calculate result



Outlet temperature  50,00 °C

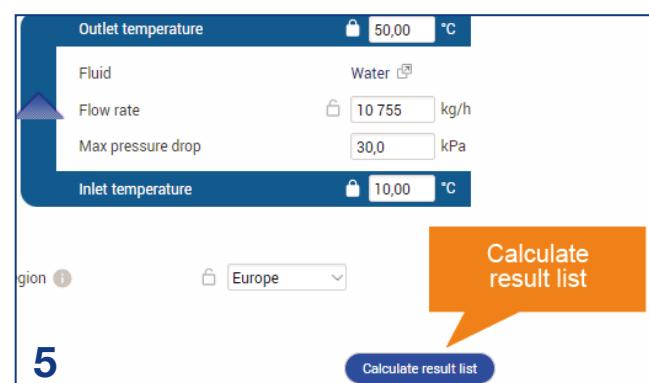
Fluid Water

Flow rate  10 755 kg/h

Max pressure drop  30,0 kPa

Inlet temperature  10,00 °C

**5** Region  Europe Calculate result list



Selection  Rating Region  Europe

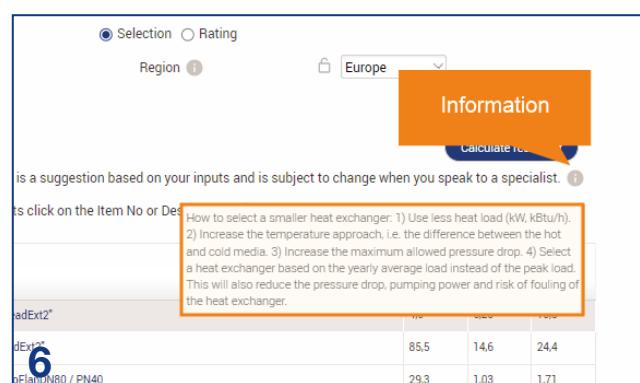
**6** Information

is a suggestion based on your inputs and is subject to change when you speak to a specialist. i

click on the Item No or Des adExt2 adExt3 adExt4

How to select a smaller heat exchanger: 1) Use less heat load (kW, kBtu/h). 2) Increase the temperature approach, i.e. the difference between the hot and cold media. 3) Increase the maximum allowed pressure drop. 4) Select a heat exchanger based on the yearly average load instead of the peak load. This will also reduce the pressure drop, pumping power and risk of fouling of the heat exchanger.

adExt2	adExt3	adExt4
85,5	14,6	24,4
29,3	1,03	1,71



1. Start by selecting Fluid. Ethanol glycol, propylene glycol, and water are available fluids to calculate for brazed plate heat exchangers with AHRI performance certification.
2. Based on your duty, simply fill in 5 out of the 7 required inputs, the remaining two are calculated automatically.
3. You can click on the **Thermometer** icon to see the temperature graph.
4. The **Region** setting gives a selection of items with relevant pressure vessel approvals and connection standards.
5. Press **Calculate result list** and you will get a list of up to 3 suitable items based on your input, all with the resulting excess surface margin and pressure drops presented.
6. For an even more efficient and smaller brazed or fusion-bonded plate heat exchanger, click on the **Information** sign to find some useful tips on how you can modify your input.

standard option based on your requirements. This is a suggestion based on your further details and download of technical documents click on the Item No or Description

	Description
820	CB110AQ-46M-F, 46 plates, 1 pass, ThreadExt2*
008	CB112AQ-62M, 62 plates, 1 pass, ThreadExt2*
717	CB210AQ-70L-F, 70 plates, 1 pass, CompFlanDN80 / PN40

**8**

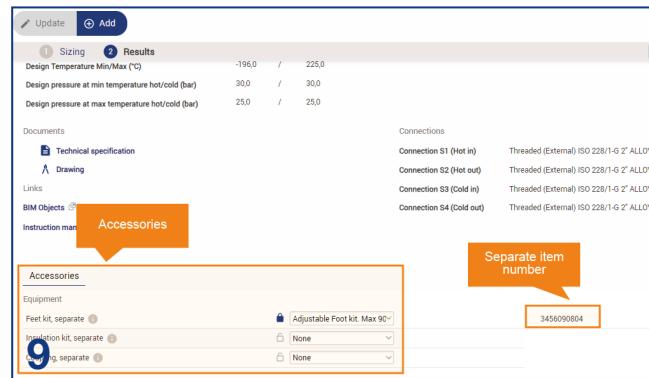
**Documents**

**Accessories**

**9**

**Separate item number**

**3456090804**



**1** Sizing **2** Results

CB110AQ-46M AHRI certified Brazed plate heat exchanger

Solution, based on the information provided at this point.

Reference id	Get Reference Id	Name	Dimension (mm)
Brand	Alfa Laval	A	92
Type	CB110AQ-46M	B	519
Item Id	3075062820	C	191
Pressure vessel code	PED	D	616
Fluids	Water/Water	E	48
Capacity (kW)	500,0	F	133
Temperature Hot side (°C) S1>S2	80,0 -> 30,0		
Temperature Cold side (°C) S3>S4	10,0 -> 50,0		
Total Pressure drop hot/cold (kPa)	6,3 / 10,5		
Flow rate hot/cold (kg/h)	8 619 / 10 755		
Net weight empty/operation (kg)	24,3 / 33,6		
Design Temperature Min/Max (°C)	-196,0 / 225,0		
Design pressure at min temperature hot/cold (bar)	30,0 / 30,0		

**8**

**Documents**

**10**

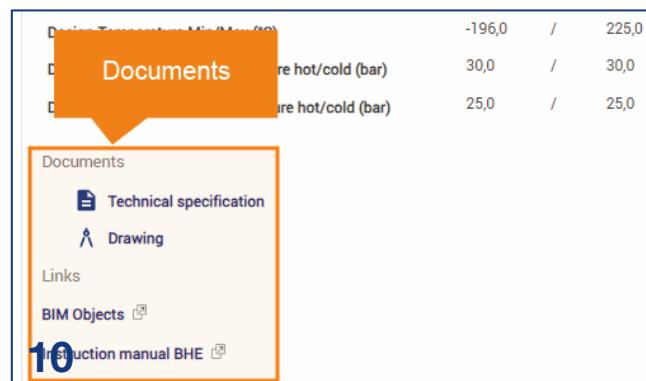
**Technical specification**

**Drawing**

**Links**

**BIM Objects**

**Instruction manual BHE**



**11**

**Reference id**

**12**

**Sizing**

**1** Sizing **2** Results

Go to Sizing

Flow rate hot/cold (kg/h)

Net weight empty/operation (kg)

Design Temperature Min/Max (°C)

Design pressure at min temperature hot/cold (bar)

Design pressure at max temperature hot/cold (bar)



- Click on the desired heat exchanger name in the description to get come to the Results page.
- Here you find an overview of the details for the specific plate heat exchanger.
- You can add **Accessories**, please note that they will be added by **separate item numbers**. Make sure to include them in your specification.
- In **Documents** you will find the technical specification, drawing and in some cases a 3D step file. There are generic BIM files available for all sizes of Alfa Laval CBAQ heat exchangers. Click on the link and you will reach BIM Objects' website. You can also download the manual which is available in multiple languages.
- Get the **Reference ID** which includes all relevant information about the heat exchanger and the duty. This reference ID can be shared with your local Alfa Laval representative when you need support as well as in your final specification.
- To calculate the surface margin and pressure drops for a different condition, go back to **Sizing**.

Max pressure drop 30,0 kPa Max pressure drop 30,0 kPa

Outlet temperature 30,0 °C Inlet temperature 10,0 °C

Selection  Rating

product model  Region  Europe

test standard option based on your requirements. This is a suggestion based on your inputs and is subject to change when you speak to a specialist or further details and download of technical documents click on the Item No or Description. 

No	Description	Calculated surface margin (%)	Pressure drop hot (kPa)	Pressure drop cold (kPa)
062820	CB110AQ-46M-F, 46 plates, 1 pass, ThreadExt2"	4,0	6,25	10,5
1169008	CB112AQ-62M, 62 plates, 1 pass, ThreadExt2"	85,5	14,6	24,4
04271	CB210AQ-70L-F, 70 plates, 1 pass, CompFlanDN80 / PN40	29,3	1,03	1,71

**13**

Outlet temperature 50,00 °C

Fluid Water 

Flow rate 10 755 kg/h

Max pressure drop 30,0 kPa

Inlet temperature 10,00 °C 

Region  Europe

**14**

Water 

Fluid 

Flow rate 7 757 kg/h 

Inlet temperature 

Selection  Rating

Product model CB112AQ

Find pre-configured standard items which many are available from stock or express delivery. If you are looking for, try Design which provides a configuration options.

**15**

Inlet temperature 80,00 °C 

Fluid Water 

Flow rate 7 757 kg/h 

Max pressure drop 30,0 kPa 

Selection  Rating

Deselect 

Product model CB112AQ

**16**

Brazed plate heat exchangers

Current folder

Restart configurator 

Update  Add 

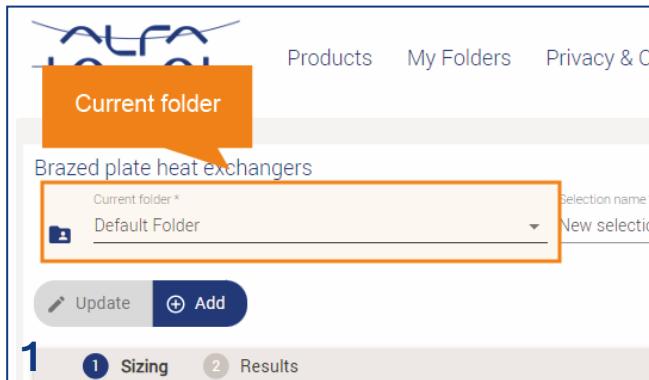
**1** Sizing **2** Results

Calculate your AHRI certified 

**17**

13. If you want to calculate one of the other heat exchangers, click on the empty space on the row of the unit you want to calculate and select Rating.
14. Change the conditions and click **Calculate result list** and the calculated margin and pressure drops will be updated.
15. To make a new selection, either change to **Selection**.
16. And then deselect the product model and make a new calculation.
17. Or you can start a new design by clicking on the **headline**.

## Save calculation, find folders and open a saved calculation



1

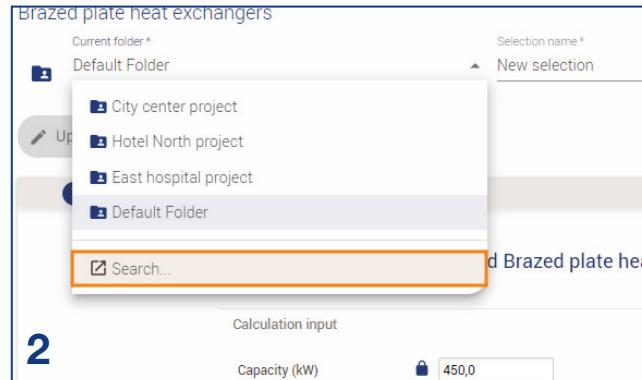
Current folder

Brazed plate heat exchangers

Current folder \* Default Folder Selection name \* New selection

Update Add

1 Sizing 2 Results



2

Brazed plate heat exchangers

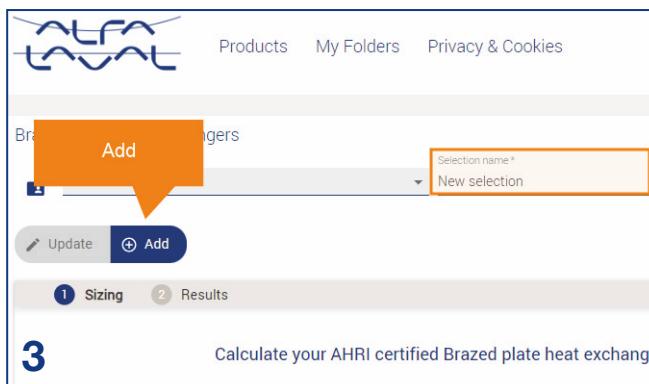
Current folder \* Default Folder Selection name \* New selection

City center project Hotel North project East hospital project Default Folder

Search...

Calculation input

Capacity (kW) 450,0



3

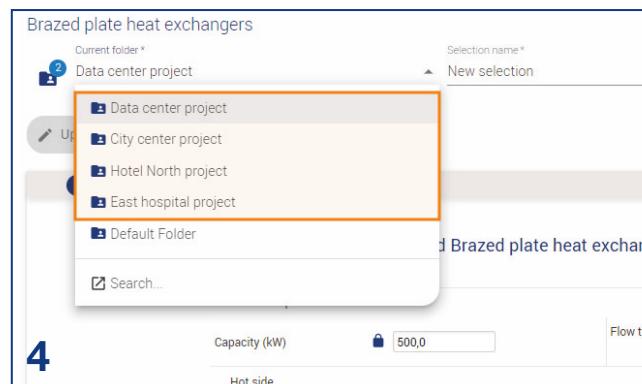
Brazed plate heat exchangers

Add Selection name \* New selection

Update Add

1 Sizing 2 Results

Calculate your AHRI certified Brazed plate heat exchange



4

Brazed plate heat exchangers

Current folder \* Data center project Selection name \* New selection

Data center project City center project Hotel North project East hospital project Default Folder

Search...

Calculation input

Capacity (kW) 500,0

Flow type

Hot side

1-2. You can save your calculation anytime. Click on the **Current folder** name and **Search** to create a new project folder for your calculations.

3. Give the selection a name and click **Add** to save it. If you make a recalculation and want to overwrite the already saved calculation you click **Update**. If you instead want to save it as a new calculation you give it a new selection name and click **Add**.

4. You can open previously saved calculations by finding them in the **Current folder** menu or you can go to **My folders** to see them all.



### **This is Alfa Laval**

The ability to make the most of what we have is more important than ever. Together with our customers, we're innovating the industries that society depends on and creating lasting positive impact. We're set on helping billions of people to get the energy, food, and clean water they need. And, at the same time, we're decarbonising the marine fleet that's the backbone of global trade.

We pioneer technologies and solutions that free our customers to unlock the true potential of resources. As our customers' businesses grow stronger, the goal of a truly sustainable world edges closer. The company is committed to optimizing processes, creating responsible growth, and driving progress to support customers in achieving their business goals and sustainability targets. Together, we're pioneering positive impact.

### **How to contact Alfa Laval**

Contact details for all countries are continually updated on our website. Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information.