

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.

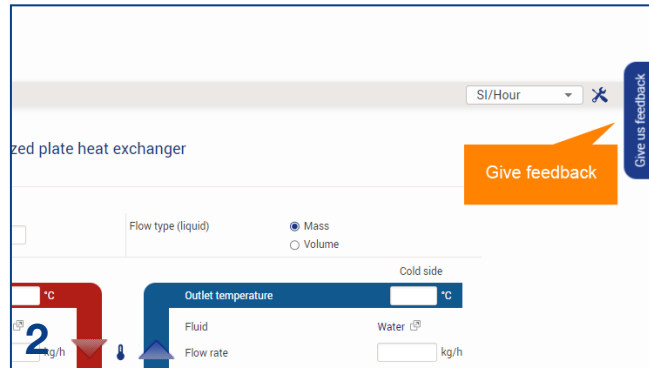


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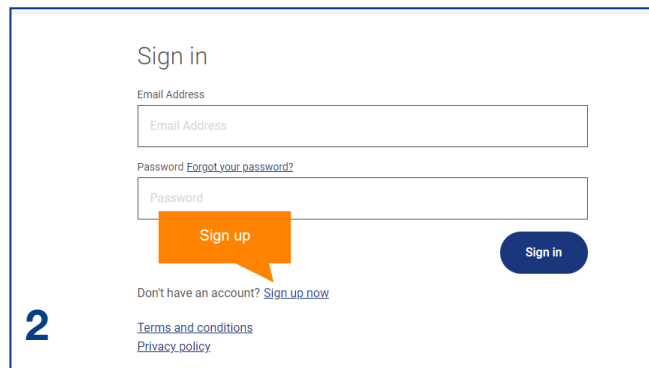
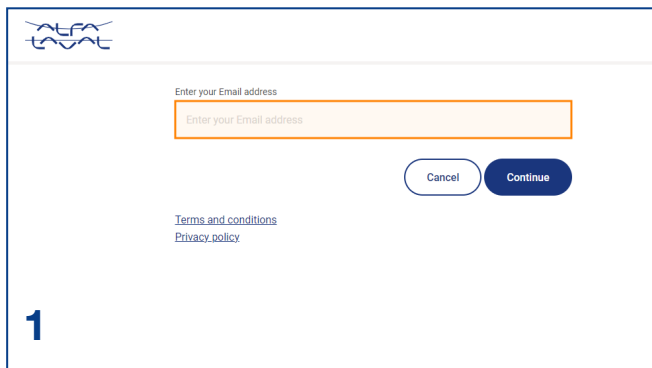


Recommended browsers and feedback function



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.

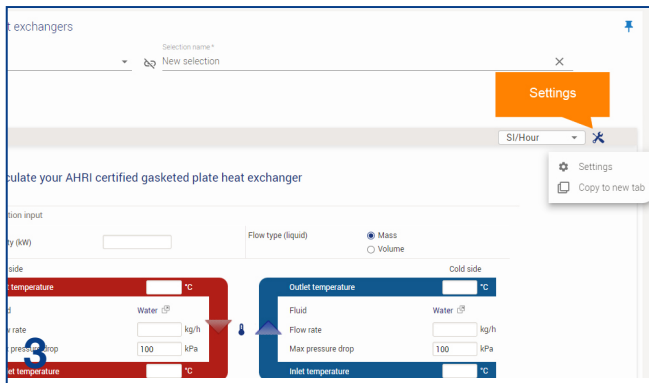
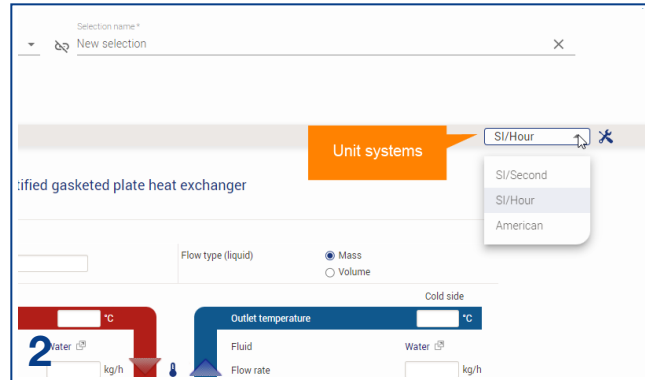
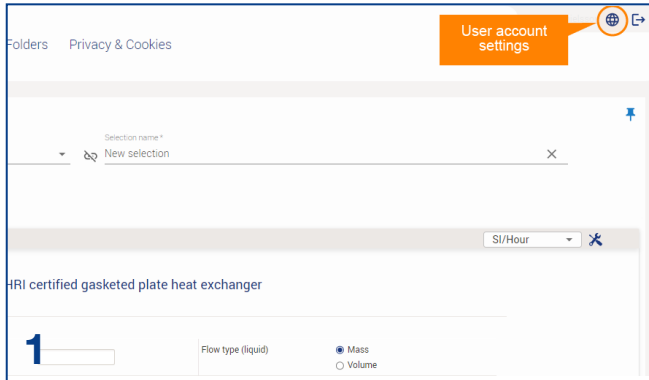
Login



1. Enter your email address 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

Inlet temperature °C

Fluid hot side Water kg/h

Max pressure drop 100 kPa

Outlet temperature °C

Cold side

Outlet temperature °C

Fluid cold side Water kg/h

Max pressure drop 100 kPa

Inlet temperature °C

1 Product input

Calculate your AHRI certified gasketed plate heat exchanger

Calculation input

Capacity (kW) 15 000 kW - 70 337,200 kW

Flow type (liquid) Mass Volume

Hot side

Inlet temperature °C

Fluid Water kg/h

Max pressure drop 100 kPa

Outlet temperature °C

Cold side

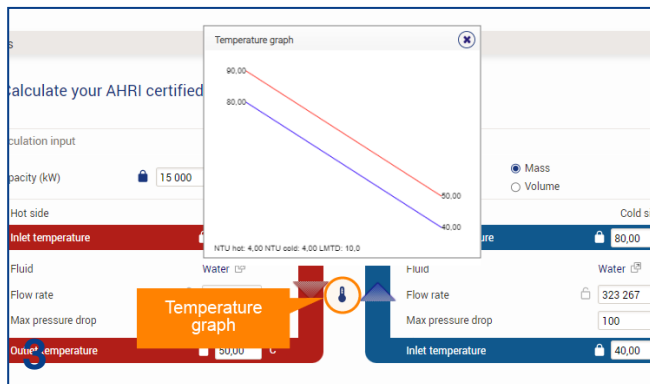
Outlet temperature °C

Fluid Water kg/h

Max pressure drop 100 kPa

Inlet temperature °C

2 Product input



4 Sizing Results

Product input

Product input

Plate material ALLOY 304

System input Inlet/outlet arrangement

Max design temperature (°C)	<input type="text"/> 90	<input type="text"/> 80
Min design temperature (°C)	<input type="text"/> 0	<input type="text"/> 0
Design pressure (bar)	<input type="text"/> 10,0	<input type="text"/> 10,0
Max operating temperature (°C)	<input type="text"/> 90	<input type="text"/> 80
Min operating temperature (°C)	<input type="text"/> 50	<input type="text"/> 40
Max operating pressure (bar)	<input type="text"/> 10,0	<input type="text"/> 10,0

Pressure vessel approval PED

For installation in Sweden Supply from region

System input

Product input

Plate material ALLOY 304

System input Inlet/outlet arrangement

Max design temperature (°C)	<input type="text"/> 90	<input type="text"/> 80
Min design temperature (°C)	<input type="text"/> 0	<input type="text"/> 0
Design pressure (bar)	<input type="text"/> 10,0	<input type="text"/> 10,0
Max operating temperature (°C)	<input type="text"/> 90	<input type="text"/> 80
Min operating temperature (°C)	<input type="text"/> 50	<input type="text"/> 40
Max operating pressure (bar)	<input type="text"/> 10,0	<input type="text"/> 10,0

Pressure vessel approval PED

For installation in Sweden Supply from region

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6 Sizing Results

Inlet/outlet arrangement

Plate material ALLOY 304

System input Inlet/outlet arrangement

Max design temperature (°C)	<input type="text"/> 90	<input type="text"/> 80
Min design temperature (°C)	<input type="text"/> 0	<input type="text"/> 0
Design pressure (bar)	<input type="text"/> 16,0	<input type="text"/> 16,0
Max operating temperature (°C)	<input type="text"/> 90	<input type="text"/> 80
Min operating temperature (°C)	<input type="text"/> 50	<input type="text"/> 40
Max operating pressure (bar)	<input type="text"/> 16,0	<input type="text"/> 16,0

Pressure vessel approval PED

For installation in Sweden Supply from region

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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.



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Installation country: Sweden

Supply region: Europe

Calculate result list

8

Calculate result list

9

Information sign

ALLOY 304, 0.4 mm	0.2	75.6	99.2
ALLOY 304, 0.5 mm	0.4	96.5	98.4
ALLOY 304, 0.6 mm	0.2	86.5	98.7

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Description

AQ6T-BFG, ALLOY 304, 0.4 mm

AQ8T-BFG, ALLOY 304, 0.5 mm

AQ8T-PFG, ALLOY 304, 0.5 mm

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AG6T-BFG, ALLOY 304, 0.4 mm

Brand	Alfa Laval
Type	AQ6T-BFG, ALLOY 304, 0.4 mm
Pressure vessel code	PED Article 4.3
Fluids	Water/Water
Capacity (l/h)	15 000.0
Dimension L x W x H (mm)	1 730x660x1 860
Weight with water (kg)	2 150
Temperature hot side (°C)	S1=62 → 90.0
Temperature cold side (°C)	S3=54 → 40.0
Total pressure drop hot/cold (kPa)	75.6 / 99.2
Flow rate hot/cold (kg/h)	322 984 / 323 267

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Documents

- Technical specification
- Drawing
- BIM Objects
- Installation Manual

Accessories

Equipment

- 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.



Reference id

Reference id

Brand: Alfa Laval

Type: AQ6T-BFG, ALLOY 304, 0.4 mm

Pressure vessel code: PED Article 4.3

Fluids: Water/Water

Capacity (kW): 15 000,0

Dimension L x W x H (mm): 1 730x660x1 860

Weight with water (kg): 2 150

Temperature hot side (°C) S1->S2: 90,0 -> 50,0

Temperature hold side (°C) S3->S4: 40,0 -> 80,0

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Gasketed plate-and-frame heat exchangers

Current folder: Default Folder

Selection name: New selection

Sizing

Results

AQ6T-BFG, ALLOY 304, 0.4 mm

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Rating

Max pressure drop: 100 kPa

Outlet temperature: 50,00 °C

Inlet temperature: °C

Design Rating

Calculate

Option	Calculated margin (%)	Pressure drop hot (kPa)	Pressure drop cold (kPa)
BFG, ALLOY 304, 0.4 mm	0.2	75.6	99.2
BFG, ALLOY 304, 0.5 mm	0.4	96.5	98.4
BFG, ALLOY 304, 0.5 mm	0.2	86.5	98.7

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Calculate result list

Outlet temperature: 80,00 °C

Fluid: Water

Flow rate: 323 267 kg/h

Inlet temperature: 40,00 °C

Calculate result list

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Restart configurator

Hot side

Inlet temperature: 90,00 °C

Fluid: Water

Flow rate: 215 323 kg/h

Outlet temperature: 50,00 °C

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- 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.
- To calculate the surface margin and pressure drops for a different condition, go back to **Sizing**.
- Click on the **empty space** on the row (not the heat exchanger name) and select **Rating**.
- Change the conditions and click **Calculate result list** and the heat exchanger result will be updated with the new conditions.
- 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

Inlet temperature °C

Fluid Water

Flow rate kg/h

Max pressure drop 30,0 kPa

Outlet temperature °C

Cold side

Outlet temperature °C

Fluid Water

Flow rate kg/h

Max pressure drop 30,0 kPa

Inlet temperature °C

Product model

Region Europe

1

Calculate your AHRI certified Brazed plate heat exchanger

Calculation input

Capacity (kW)

Flow type (liquid) Mass Volume

Hot side

Inlet temperature °C

Fluid Water

Flow rate kg/h

Max pressure drop 30,0 kPa

Outlet temperature °C

Cold side

Outlet temperature °C

Fluid Water

Flow rate kg/h

Max pressure drop 30,0 kPa

Inlet temperature °C

Product model

Region Europe

2

Calculate result list

results

Calculate your AHRI certified

Calculation input

Capacity (kW) 500,0

Flow type (liquid) Mass Volume

Hot side

Inlet temperature °C

Fluid Water

Flow rate kg/h

Max pressure drop 30,0 kPa

Outlet temperature °C

Cold side

Outlet temperature 50,00 °C

Fluid Water

Flow rate 10 755 kg/h

Max pressure drop 30,0 kPa

Inlet temperature 10,00 °C

NTU hot: 2,00 NTU cold: 1,50 LMTD: 24,7

Temperature graph

3

Calculation input

Capacity (kW)

Flow type (liquid) Mass Volume

Hot side

Inlet temperature 80,00 °C

Fluid Water

Flow rate 8 619 kg/h

Max pressure drop 30,0 kPa

Outlet temperature °C

Cold side

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

4

Calculate result list

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

5

Calculate result list

Selection Rating

Region Europe

Information

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

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*			
dExt2*	85,5	14,6	24,4
bFlanDN80 / PN40	29,3	1,03	1,71

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1. Only water is available to calculate for brazed plate heat exchangers with AHRI certification. If you need to use glycols, please contact your local Alfa Laval representative.
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 requirements. For further details and download of technical documents click on the Item No or Description.

Item No	Description
320	CB110AQ-46M-F, 46 plates, 1 pass, ThreadExt2"
308	CB112AQ-62M, 62 plates, 1 pass, ThreadExt2"
3717	CB210AQ-70L-F, 70 plates, 1 pass, CompFlanDN80 / PN40

Sizing 2 Results

CB110AQ-46M AHRI certified Braze plate heat exchanger

Solution, based on the information provided at this point.

Reference id	Brand	Type	Item id	Pressure vessel code	Fluids	Capacity (kW)	Temperature Hot side (°C)	Temperature Cold side (°C)	Total Pressure drop hot/cold (kPa)	Flow rate hot/cold (kg/h)	Net weight empty/operation (kg)	Design Temperature Min/Max (°C)
	Alfa Laval	CB110AQ-46M	3075062820	PED	Water/Water	500,0	80,0	10,0	6,3	8 619	24,3	-196,0
							30,0	50,0	10,5	10 755	33,6	225,0

Name	Dimension (mm)
A	92
B	519
C	191
D	616
E	48
F	133

7. Click on the desired heat exchanger name in the description to get come to the Results page.

8. Here you find an overview of the details for the specific plate heat exchanger.

9. You can add **Accessories**, please note that they will be added by **separate item numbers**. Make sure to include them in your specification.

10. 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.

11. 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.

12. To calculate the surface margin and pressure drops for a different condition, go back to **Sizing**.

Update Add

Sizing 2 Results

Design Temperature Min/Max (°C) -196,0 / 225,0

Design pressure at min temperature hot/cold (bar) 30,0 / 30,0

Design pressure at max temperature hot/cold (bar) 25,0 / 25,0

Documents

- Technical specification
- Drawing
- Links
- BIM Objects
- Instruction manual

Accessories

Equipment

- Feet kit, separate
- Insulation kit, separate
- Supporting, separate

Adjustable Foot kit, Max 90°

None

None

Separate item number 3456090804

Design Temperature Min/Max (°C) -196,0 / 225,0

Design pressure at min temperature hot/cold (bar) 30,0 / 30,0

Design pressure at max temperature hot/cold (bar) 25,0 / 25,0

Documents

- Technical specification
- Drawing
- Links
- BIM Objects
- Instruction manual BHE

CB110AQ-46M AHRI certified Braze plate heat exchanger

Solution, based on the information provided at this point.

Reference id Get Reference id

Brand	Name
Alfa Laval	A
CB110AQ-46M	B
3075062820	C
PED	D
Water/Water	E
500,0	F

Capacity (kW)

Temperature Hot side (°C) S1->S2 80,0 -> 30,0

Temperature Cold side (°C) S3->S4 10,0 -> 50,0

Braze plate heat exchangers

Current folder * Default Folder Selection name * New selection

Sizing 2 Results

Go to Sizing

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
Design pressure at max temperature hot/cold (bar)	25,0	/	25,0

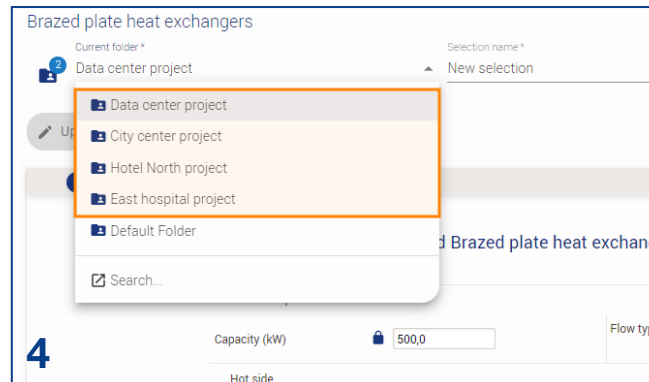
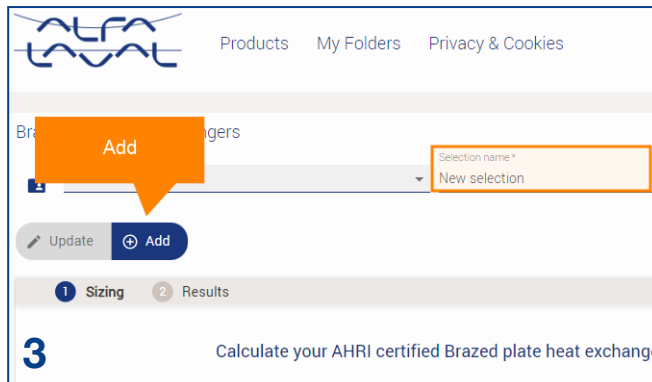
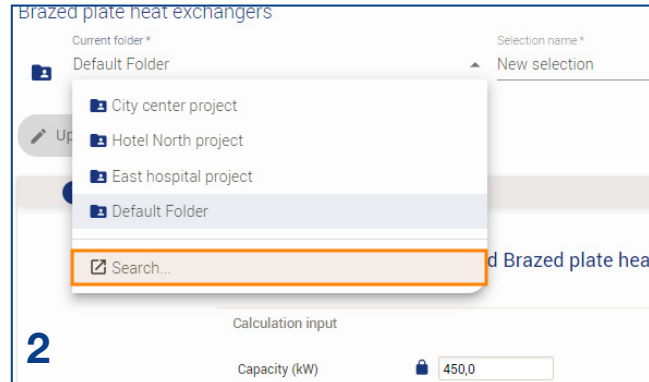
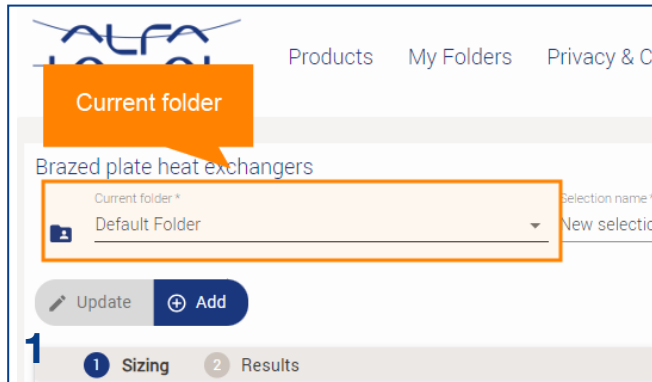


No	Description	Calculated surface margin (%)	Pressure drop hot (kPa)	Pressure drop cold (kPa)
062820	CB110AQ-46MF-46 plates, 1 pass, ThreadExt2"	4.0	6.25	10.5
168008	CB112AQ-62M-62 plates, 1 pass, ThreadExt2"	85.5	14.6	24.4
04271	CB210AQ-70L-70 plates, 1 pass, CompFlanDN80 / PN40	29.3	1.03	1.71

- 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**.
- Change the conditions and click **Calculate result list** and the calculated margin and pressure drops will be updated.
- To make a new selection, either change to **Selection**.
- And then deselect the product model and make a new calculation.
- Or you can start a new design by clicking on the **headline**.



Save calculation, find folders and open a saved calculation



- 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 to access the information.