

# HFL

## Closed circuit cooling towers



### Key benefits

- Unrivalled water savings
- Compact
- Superb hygiene control

#### HFL characteristics

Counter flow, centrifugal fan, forced draft  
Hybrid wet-dry cooling

#### Capacity range

up to 1275 kW

#### Maximum entering fluid temperature

82°C

#### Typical applications

- Medium to large HVAC and industrial applications
- Low height requirements
- Water saving requirements
- Plume reduction requirements
- Tight enclosures and installations requiring a single air inlet
- Indoor installations
- Sound critical installations



## Unrivalled water-saving

- Patented intelligent **flow control system!**  
With a [3-way valve](#) for precise setting of outlet fluid temperature and unrivalled annual water-saving.
- Load profile-adaptable to **dry**, **adiabatic** or combined **wet-dry** operation.

## Compact

- **Side by side** installation for double cell towers. Water basin access is at tower connection end.
- **Very low height.** Fits perfectly on **roof tops** or tight enclosures.
- **Low operating weight.** Water basin contains only 1/4 of the water of conventional evaporative fluid coolers.

## Superb hygiene control

- **Dry-running** for 10 months per year possible depending on application and weather conditions.
- Self-cleaning auto-drain **sump** to prevent stagnant water.
- **Basin for water outside air stream** and accessible during operation

## For reduced noise

- **Low noise centrifugal fans** for a quieter environment.
- Single-side air inlet, and a **quieter tower rear** for more noise-sensitive areas.

## Easy to install

- Single-side air inlet lets you install **next to solid walls**.
- Units housable **indoors** thanks to centrifugal fans allowing intake or discharge ductwork.

## Guaranteed year-round reliable operation

- During dry winter operation, **no extra sump drainage needed.** With HFL water basin outside airstream, and heaters to prevent basin water freezing, even with fans at top speed.
- **Non-plume** wet operation **thanks to optional** [dry finned coil](#): it reduces humidity of discharge air from the prime surface coil.
- Various **corrosion-resistant** materials, including the unique [Baltibond hybrid coating](#) for guaranteed long service life.

**Interested in the HFL hybrid closed circuit cooling tower for cooling your process fluid?** Contact your local [BAC representative](#) for more information.



## Downloads

- [HFL closed circuit cooling tower](#)
- [Operating and Maintenance HFL](#)
- [Rigging and Installation HFL](#)
- [HFL Hybrid closed circuit cooling tower - brochure](#)

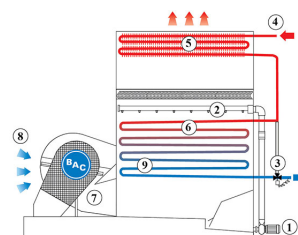
# Principle of operation

## Closed circuit cooling towers

### Principle of operation

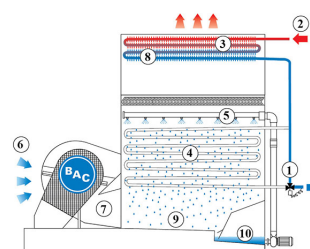
#### Dry operation

The spray water **pump (1)** and **spray system (2)** are turned off and the modulating **flow control valve (3-way valve) (3)** remains fully open. The warm process **fluid (4)** flows both through the **finned discharge coil (5)** and the **prime surface coil (6)**. A **fan (7)** blows the ambient **air (8)** over the coil and cools the **fluid (9)** inside the coil. In this mode neither water consumption nor plume occurs.



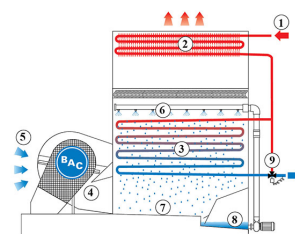
#### Adiabatic operation

The **flow control valve (3-way valve) (1)** lets the warm process **fluid (2)** flow through the **finned discharge coil (3)**, by-passing the **wet prime surface coil (4)**. The prime surface coil is wetted by the **spray water (5)** but there is no water evaporation for heat rejection purposes. Some water will however evaporate, which will humidify the incoming ambient **air (6)** that is blown by a **fan (7)** over the coils. This saturated air has a better cooling capacity to cool down the process **fluid (8)** in the finned coil. The spray water drops into a plenum with sloping **bottom (9)** and drains into the separated wet **sump (10)**. The pump recirculates the water to the spray system. Visible plume and water consumption are greatly reduced while the design fluid outlet temperature is kept.



## Wet-dry operation

The warm process **fluid (1)** flows both through the **finned discharge coil (2)** and the **prime surface coil (3)**. A **fan (4)** blows the **air (5)** over the coils. At the top where the warm fluid enters the tower, the discharge air is saturated and pre-cools already the fluid. Then a next heat transfer process occurs in the prime surface coil which is wetted by the **spray system (6)**. The spray water drops into a plenum with **sloping bottom (7)** and drains into the separated wet **sump (8)**. The pump recirculates the water to the spray system. When there is less heat load or the ambient temperature drops, the **modulating valve (9)** will control the flow through the prime surface coil in a way that the design fluid outlet temperature is kept. Plume is also minimized because there is less evaporated water and the discharge air is heated with the dry finned coil.



**You want to use the HFL hybrid closed cooling tower to cool your process fluid?** Contact your local [BAC representative](#) for more information.

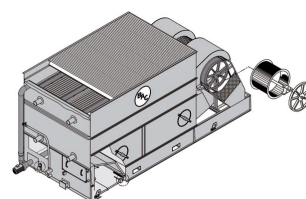
# Construction details

## Closed circuit cooling towers

### Construction details

#### 1. Material options

- Heavy-gauge hot-dip galvanized steel is used for external unit steel panels and structural elements featuring [Baltiplus Corrosion Protection](#).
- The unique [Baltibond hybrid coating](#) **is an optional extra**. A hybrid polymer coating for longer service life, applied pre-assembly to all hot-dip galvanized steel components of the unit.
- Optional [stainless steel](#) panels and structural elements of type 304L or 316L for extreme applications.
- Or the economical alternative: a **water-contact stainless steel cold water basin**. Its key components and the basin itself are stainless steel. The rest is protected with the Baltibond hybrid coating.



## 2. Heat transfer media

### Prime surface coil

- The coil is constructed of continuous length of prime surface steel, hot-dip galvanized after fabrication. Designed for free drainage of the fluid and maximum 10 bar operating pressure according to PED. Pneumatically tested at 15 bar.
- All hot dip galvanized and stainless steel coils are delivered with BAC's **Internal Coil Corrosion Protection**, to ensure an optimal internal corrosion protection and guaranteed quality.



**Optional stainless steel coils** are in type 304L or 316L.

### Optional finned coil

- The dry finned coil is constructed of minimum 4 circuits of **staggered copper tubes** with aluminium plate fins.
- In galvanised steel casing with **access door** and enough space for inspection.
- Designed for free drainage of the fluid and maximum 10 bar operating pressure according to PED. Pneumatically tested at 15 bar.
- In combination with a **flow control package** including a [3-way valve](#), temperature sensor and piping.

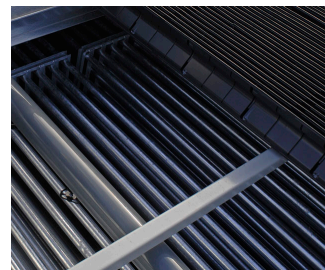
## 3. Air movement system

- With motor-driven centrifugal fan and a **V-belt drive**, sized for dry operation as standard. You can easily remove the entire motor base for proper belt tensioning to ensure constantly correct belt alignment. Together with the **heavy duty fan shaft bearings** this guarantees optimal operational efficiency.
- **Centrifugal fan(s)** are forward-curved and nearly noiseless. Overcome external static pressure! Use [sound attenuators](#) and duct work etc. for air intake/discharge with no loss of thermal performance!
- **Our drift eliminators** come in UV-resistant plastic, which will not rot, decay or decompose and their performance is tested and **certified by Eurovent**. They are assembled in **easily handled and removable sections**, for optimal internal access.



## 4. Water distribution system

- A **header** and **spray branches** with wide non-clog plastic **nozzles**, secured by rubber **grommets**.
- A spray water collection section with:
  - dry sloped basin with circular access doors
  - wet water basin out of the air stream including easy to lift-out anti-vortexing **strainer, make up** , rectangular access doors.
- Close coupled, bronze fitted centrifugal **spray pump** with totally enclosed fan cooled (TEFC) motor at connection end of the unit. Bleed line with metering valve installed from pump discharge to overflow.
- The **electric water level control package** maintains a constant water level in the cold water sump independent of cooling load changes and water supply pressure variations.



Like to know more about the HFL construction details? Contact your [local BAC representative](#).



# Options and accessories

## Closed circuit cooling towers

### Options and accessories

Below is a listing of the main HFL options and accessories. If you required option or accessory is not listed, look no further than your [local BAC representative](#).



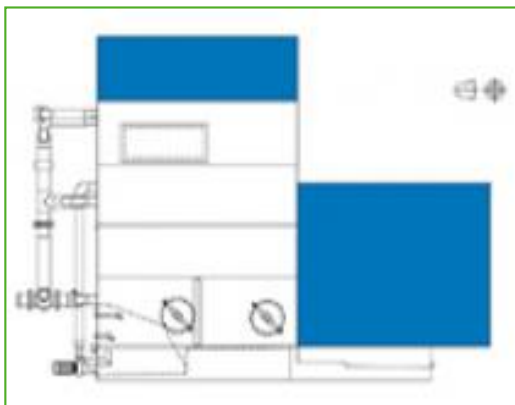
#### Plume abatement coil

A finned discharge coil is installed in your cooling tower discharge and piped in series with the wet coil. This **reduces or eliminates plumes** and **extends the dry cooling capacity**.



#### 3-way-valve

A 3-way-valve is installed on your cooling tower in order to assure maximum water savings.



## Sound attenuation

Reducing noise at air intake and discharge points brings us closer to silent cooling equipment.

- The sound reductions obtained by HS sound attenuation are perfect for **residential** sound requirements.
- Heavy noise reductions can be achieved with HD sound attenuation, making it ideal for **rural** requirements.



## Baltiguard drive system

With this, operate your system like a dual-speed motor, but with standby reserve capacity **to cope with any failure**.



## Remote sump connection

The best way to **prevent a sump freezing** is to use the auxiliary remote variety within a heated area. Shutting off the circulating pump allows all the water in the water distribution, as well as that in suspension and the sump to drain freely to the auxiliary sump.



## Basin heater package

Thanks to our factory-installed heaters, the water stays at 4°C and **never freezes**, even during equipments downtime and however cold it gets outside.



## Discharge hood

Discharge hoods **reduce the risk of re-circulation** in tight enclosures by increasing discharge air velocity, and can be used to elevate the unit discharge above adjacent walls to comply with layout guidelines.



## Standby pump

Install a standby **reserve spray pump** as failure backup!



## Pump relocation

Move the pump to the connection side and make it **more accessible** when using sound attenuation at the fan side.



## Steel drift eliminators

Steel drift eliminators are more **robust** than plastic alternatives.



## Safety switch

Cuts power to motors **with safety in mind** during inspection or maintenance.



## Water treatment equipment

Devices to control water treatment are needed to ensure proper **cooling tower water care**. Not only does this help protect the components and fill pack, controlling corrosion, scaling and fouling, it also avoids the proliferation of harmful bacteria, including **legionella**, in the recirculating water.



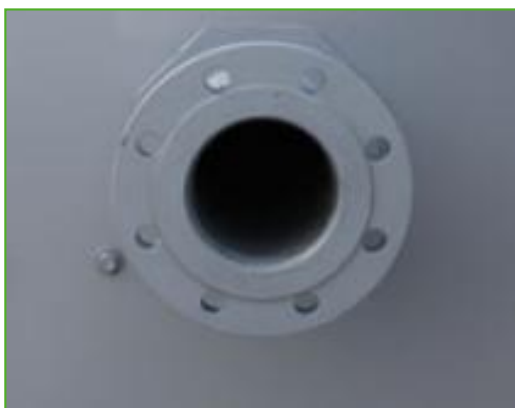
## Filter

Separators and media filters efficiently **remove suspended solids** in the recirculating water, reducing system cleaning costs and optimizing water treatment results. Filtration helps you keep the recirculating water clean.



## Clean out port

Clean out port **makes it easy to eliminate silt and sludge** from the cooling tower basin when cleaning and flushing the sump.



## Flanges

Flanges facilitate **pipng connections** on-site.



# Special needs?

## Closed circuit cooling towers

### Special needs?

Our ongoing [R&D](#) investment helps BAC offer you a complete set of solutions **for HFL hybrid closed circuit cooling towers that meet your needs**. Plus, we also cater for extra requirements such as:

#### Sound control

HFL uses a centrifugal fan in a V-design enclosure for better sound-control.

**A quieter tower rear** for more noise-sensitive areas.

Helping keep it near noiseless:

- [Sound attenuators](#)
- [Baltiguard drive system](#)

#### Plume control

Tap into abundant BAC plume control experience. For the HFL line, we offer [plume abatement coils](#) with **reduced plume** and an optional 3-way valve for **intelligent flow control**.

Check out our [BAC plume visualization software](#) for insight into **how your cooling equipment will plume** before installation. Helping you choose the best and most effective plume abatement solution.

## Water savings

You need water for evaporative cooling. At BAC, however, we offer acclaimed and advanced water saving technologies. Helping in this aim are:

- [Electric water level control package](#)
- [Water treatment equipment](#)
- [Sump sweeper piping](#)
- [3-way valve control](#)
- [Plume abatement coil](#)

## Energy saving

HFL uses evaporative cooling technology for lower operating temperatures than other cooling methods. With the following options, reduce energy costs still further:

- [Baltiguard drive system](#)
- Thermostat

## Enhanced hygiene and water care

Water circulates in evaporative cooling towers and it is important to avoid excessive accumulation of dissolved solids. The following options help keep your cooling tower clean:

- [Remote sump connection](#)
- [Water treatment equipment](#)
- [Sump sweeper piping](#)
- [Clean out port](#)
- [Filters](#)

To control biological growth and scale formation, the water quality of the circulated water should be checked regularly. [Water quality guidelines](#) can be found in the [Knowledge center](#) of the website.





## Year-round reliable operation

Inspect and maintain your cooling tower and protect it against extreme weather for year-round reliability. The options below help keep your cooling tower running smoothly and reliably and facilitate maintenance.

- [Remote sump connection](#)
- [Water treatment equipment](#)
- [Sump sweeper piping](#)
- [Clean out port](#)
- [Filters](#)
- [Electric water level control package](#)
- [Basin heater package](#)
- [Standby pump](#)

**Do you too want to benefit from the above solutions?** Contact your [local BAC representative](#) for more information.





# HFL 36X-48X

## Closed circuit cooling towers

### Engineering data

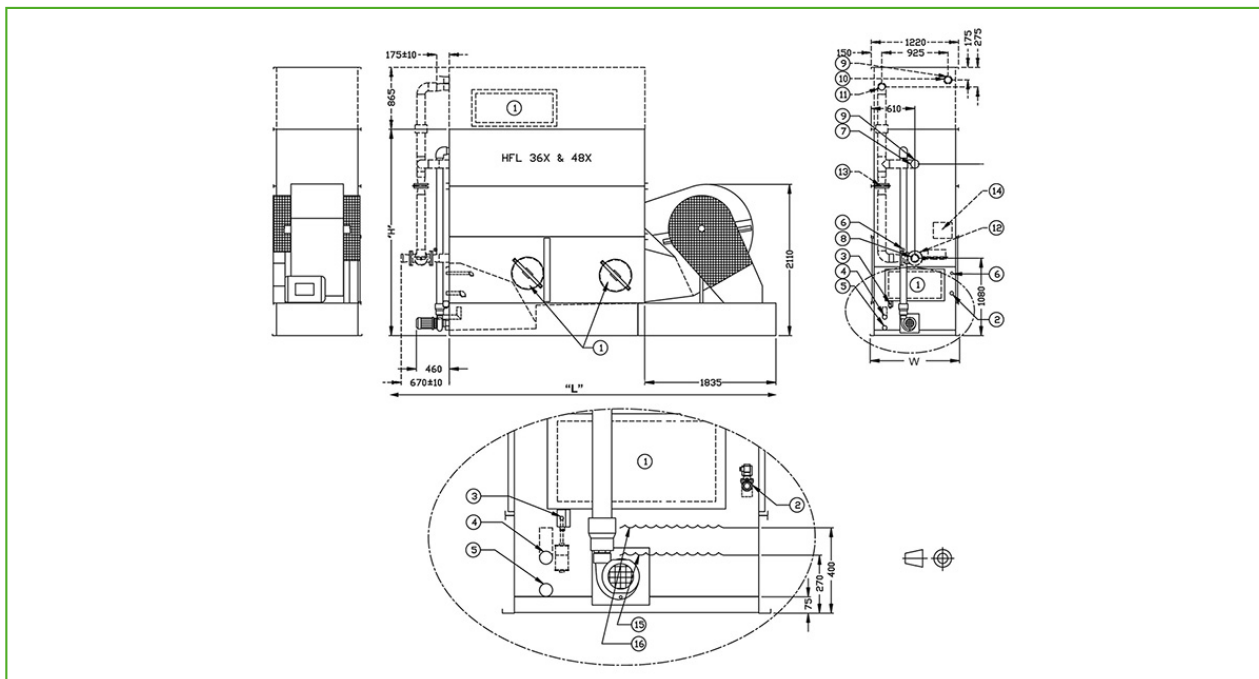
**REMARK:** Do not use for construction. Refer to factory certified dimensions & weights. This page includes data current at time of publication, which should be reconfirmed at the time of purchase. In the interests of product improvement, specifications, weights and dimensions are subject to change without notice.

### General notes

1. All connections 100 mm and smaller are MPT. Connections larger than 100 mm are beveled for welding.
2. Fan kW is for HFL units without FDC (0 Pa ESP) and in wet operation. To operate against external static pressure up to 125 Pa, consult your local BAC Balticare representative for size and location.
3. Airflow is for HFL units without FDC. For airflow of units equipped with the FDC consult your local BAC Balticare representative.
4. Unit height is indicative, for precise value refer to certified print.
5. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted.
6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

### HFL 36X-48X



1. Access; 2. Make up; 3. Electric float switch; 4. Overflow; 5. Drain; 6. Water treatment connection; 7. Bare coil fluid inlet ND100; 8. Bare coil fluid outlet ND100; 9. Vent; 10. FDC fluid inlet ND80; 11. FDC fluid outlet ND80; 12. Three-way-valve; 13. Orifice; 14. Terminal box; 15. Operating level; 16. Overflow level.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H				
HFL 361-L	2680	2025	2025	4565	1250	2175	12.7	(1x) 11.0	9.0	(1x) 0.75
HFL 361-M	2690	2035	2035	4565	1250	2175	13.8	(1x) 15.0	9.0	(1x) 0.75
HFL 362-M	3010	2305	2305	4565	1250	2410	13.4	(1x) 15.0	9.0	(1x) 0.75
HFL 363-K	3350	2495	2495	4565	1250	2675	10.8	(1x) 7.5	9.0	(1x) 0.75
HFL 363-M	3420	2565	2565	4565	1250	2675	13.0	(1x) 15.0	9.0	(1x) 0.75
HFL 364-M	3690	2835	2835	4565	1250	2880	12.5	(1x) 15.0	9.0	(1x) 0.75
HFL 481-M	3135	2410	2410	5485	1250	2175	15.1	(1x) 15.0	12.1	(1x) 1.1
HFL 482-L	3575	2730	2730	5485	1250	2410	13.6	(1x) 11.0	12.1	(1x) 1.1
HFL 483-L	4035	3070	3070	5485	1250	2675	13.4	(1x) 11.0	12.1	(1x) 1.1
HFL 483-M	4045	3080	3080	5485	1250	2675	14.6	(1x) 15.0	12.1	(1x) 1.1
HFL 484-M	4505	3410	3410	5485	1250	2880	14.3	(1x) 15.0	12.1	(1x) 1.1



# HFL 72X-96X

## Closed circuit cooling towers

### Engineering data

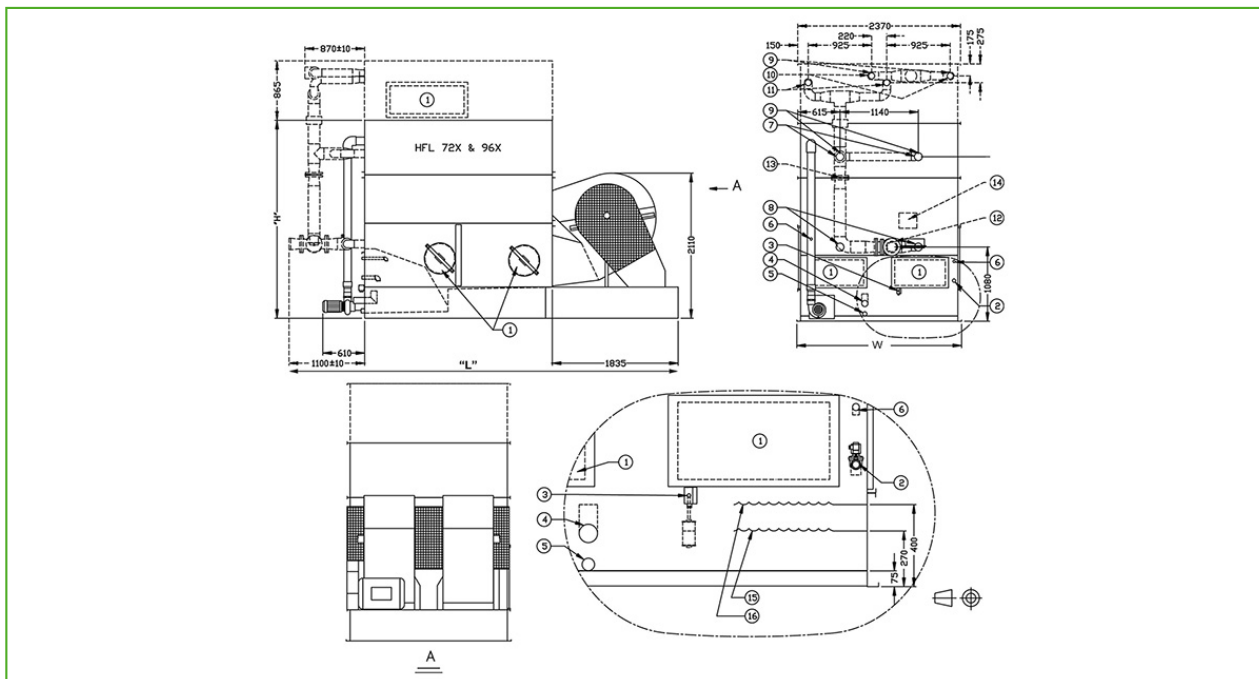
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### General notes

1. All connections 100 mm and smaller are MPT. Connections larger than 100 mm are beveled for welding.
2. Fan kW is for HFL units without FDC (0 Pa ESP) and in wet operation. To operate against external static pressure up to 125 Pa, consult your local BAC Balticare representative for size and location.
3. Airflow is for HFL units without FDC. For airflow of units equipped with the FDC consult your local BAC Balticare representative.
4. Unit height is indicative, for precise value refer to certified print.
5. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted.
6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

### HFL 72X-96X



1. Access; 2. Make up; 3. Electric float switch; 4. Overflow; 5. Drain; 6. Water treatment connection; 7. Bare coil fluid inlet ND100; 8. Bare coil fluid outlet ND100; 9. Vent; 10. FDC fluid inlet ND80; 11. FDC fluid outlet ND80; 12. Three-way valve; 13. Orifice; 14. Terminal box; 15. Operating level; 16. Overflow level.

Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H				
HFL 721-L	4765	3450	3450	4565	2400	2175	20.0	(1x) 11.0	17.9	(1x) 1.1
HFL 721-M	4775	3460	3460	4565	2400	2175	21.8	(1x) 15.0	17.9	(1x) 1.1
HFL 721-O	4805	3490	3490	4565	2400	2175	24.6	(1x) 22.0	17.9	(1x) 1.1
HFL 722-N	5495	4000	4000	4565	2400	2410	22.8	(1x) 18.5	17.9	(1x) 1.1
HFL 722-O	5515	4020	4020	4565	2400	2410	24.0	(1x) 22.0	17.9	(1x) 1.1
HFL 723-L	6225	4510	4510	4565	2400	2675	19.3	(1x) 11.0	17.9	(1x) 1.1
HFL 723-O	6265	4550	4550	4565	2400	2675	23.4	(1x) 22.0	17.9	(1x) 1.1
HFL 724-O	6935	5090	5090	4565	2400	2880	22.9	(1x) 22.0	17.9	(1x) 1.1
HFL 961-P	5650	4190	4190	5485	2400	2175	28.7	(1x) 30.0	24.2	(1x) 2.2
HFL 962-N	6400	4700	4700	5485	2400	2410	24.5	(1x) 18.5	24.2	(1x) 2.2
HFL 962-O	6440	4740	4740	5485	2400	2410	25.9	(1x) 22.0	24.2	(1x) 2.2
HFL 962-P	6540	4840	4840	5485	2400	2410	28.3	(1x) 30.0	24.2	(1x) 2.2
HFL 963-O	7340	5400	5400	5485	2400	2675	25.6	(1x) 22.0	24.2	(1x) 2.2
HFL 963-P	7440	5500	5500	5485	2400	2675	27.9	(1x) 30.0	24.2	(1x) 2.2
HFL 964-O	8330	6050	6050	5485	2400	2880	24.71	(1x) 22.0	24.2	(1x) 2.2
HFL 964-P	8430	6150	6150	5485	2400	2880	27.4	(1x) 30.0	24.2	(1x) 2.2



# HFL 108X-144X

## Closed circuit cooling towers

### Engineering data

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### General notes

1. All connections 100 mm and smaller are MPT. Connections larger than 100 mm are beveled for welding.
2. Fan kW is for HFL units without FDC (0 Pa ESP) and in wet operation. To operate against external static pressure up to 125 Pa, consult your local BAC Balticare representative for size and location.
3. Airflow is for HFL units without FDC. For airflow of units equipped with the FDC consult your local BAC Balticare representative.
4. Unit height is indicative, for precise value refer to certified print.
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6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

### HFL 108X-144X

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For more up to date information, visit: <https://www.baltimoreaircoil.eu/en/products/HFL-108X-144X>



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H				
HFL 1081-O	7280	5310	5310	4565	3605	2175	33.29	(1x) 22.0	26.9	(1x) 4.0
HFL 1081-P	7300	5330	5330	4565	3605	2175	36.92	(1x) 30.0	26.9	(1x) 4.0
HFL 1082-O	8250	6050	6050	4565	3605	2410	32.35	(1x) 22.0	26.9	(1x) 4.0
HFL 1082-P	8270	6070	6070	4565	3605	2410	35.87	(1x) 30.0	26.9	(1x) 4.0
HFL 1083-O	9410	6840	6840	4565	3605	2675	31.12	(1x) 22.0	26.9	(1x) 4.0
HFL 1083-P	9430	6860	6860	4565	3605	2675	34.51	(1x) 30.0	26.9	(1x) 4.0
HFL 1084-O	10340	7640	7640	4565	3605	2880	30.45	(1x) 22.0	26.9	(1x) 4.0
HFL 1084-P	10360	7660	7660	4565	3605	2880	33.77	(1x) 30.0	26.9	(1x) 4.0
HFL 1084-Q	10460	7760	7760	4565	3605	2880	36.21	(1x) 37.0	26.9	(1x) 4.0
HFL 1441-Q	8660	6340	6340	5485	3605	2175	40.67	(1x) 37.0	36.3	(1x) 4.0
HFL 1442-O	9770	7220	7220	5485	3605	2410	33.65	(1x) 22.0	36.3	(1x) 4.0
HFL 1442-P	9790	7240	7240	5485	3605	2410	37.31	(1x) 30.0	36.3	(1x) 4.0
HFL 1443-O	11080	8170	8170	5485	3605	2675	32.75	(1x) 22.0	36.3	(1x) 4.0
HFL 1443-P	11100	8190	8190	5485	3605	2675	36.31	(1x) 30.0	36.3	(1x) 4.0
HFL 1443-Q	11190	8290	8290	5485	3605	2675	39.94	(1x) 37.0	36.3	(1x) 4.0
HFL 1444-O	13110	9140	9140	5485	3605	2880	32.09	(1x) 22.0	36.3	(1x) 4.0
HFL 1444-P	12535	9160	9160	5485	3605	2880	35.58	(1x) 30.0	36.3	(1x) 4.0
HFL 1444-Q	12635	9260	9260	5485	3605	2880	38.15	(1x) 37.0	36.3	(1x) 4.0



# HFL 150X-192X

## Closed circuit cooling towers

### Engineering data

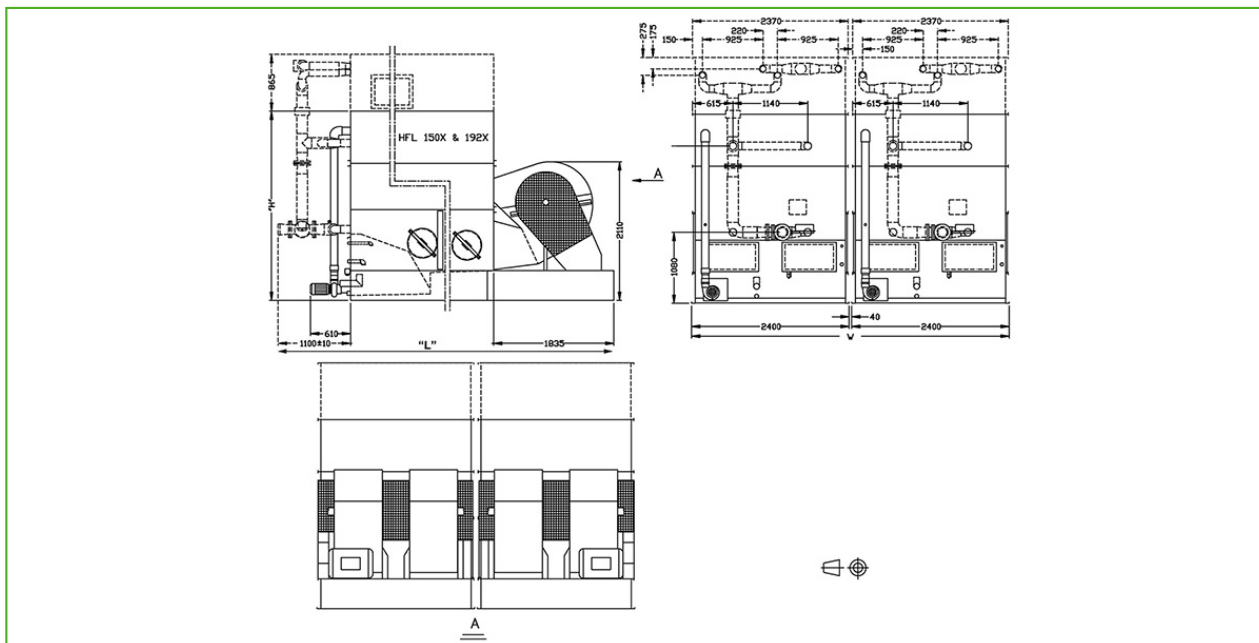
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6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

### HFL 150X-192X



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H				
HFL 1501-L	9530	6900	3450	4565	4840	2175	40.0	(2x) 11.0	35.8	(2x) 1.1
HFL 1501-M	9550	6920	3460	4565	4840	2175	43.6	(2x) 15.0	35.8	(2x) 1.1
HFL 1501-O	9610	6980	3490	4565	4840	2175	49.2	(2x) 22.0	35.8	(2x) 1.1
HFL 1502-N	10990	8000	4000	4565	4840	2410	45.6	(2x) 18.5	35.8	(2x) 1.1
HFL 1502-O	11030	8040	4020	4565	4840	2410	48.0	(2x) 22.0	35.8	(2x) 1.1
HFL 1503-L	12450	9020	4510	4565	4840	2675	38.6	(2x) 11.0	35.8	(2x) 1.1
HFL 1503-O	12530	9100	4550	4565	4840	2675	46.8	(2x) 22.0	35.8	(2x) 1.1
HFL 1504-O	13870	10180	5090	4565	4840	2880	45.8	(2x) 22.0	35.8	(2x) 1.1
HFL 1921-P	11300	8380	4190	5485	4840	2175	57.4	(2x) 30.0	48.4	(2x) 2.2
HFL 1922-N	12800	9400	4700	5485	4840	2410	49.0	(2x) 18.5	48.4	(2x) 2.2
HFL 1922-O	12880	9480	4740	5485	4840	2410	51.8	(2x) 22.0	48.4	(2x) 2.2
HFL 1922-P	13080	9680	4840	5485	4840	2410	56.6	(2x) 30.0	48.4	(2x) 2.2
HFL 1923-O	14680	10800	5400	5485	4840	2675	51.2	(2x) 22.0	48.4	(2x) 2.2
HFL 1923-P	14880	11000	5500	5485	4840	2675	55.8	(2x) 30.0	48.4	(2x) 2.2
HFL 1924-P	16860	12300	6150	5485	4840	2880	54.8	(2x) 30.0	48.4	(2x) 2.2



# HFL 216X-288X

## Closed circuit cooling towers

### Engineering data

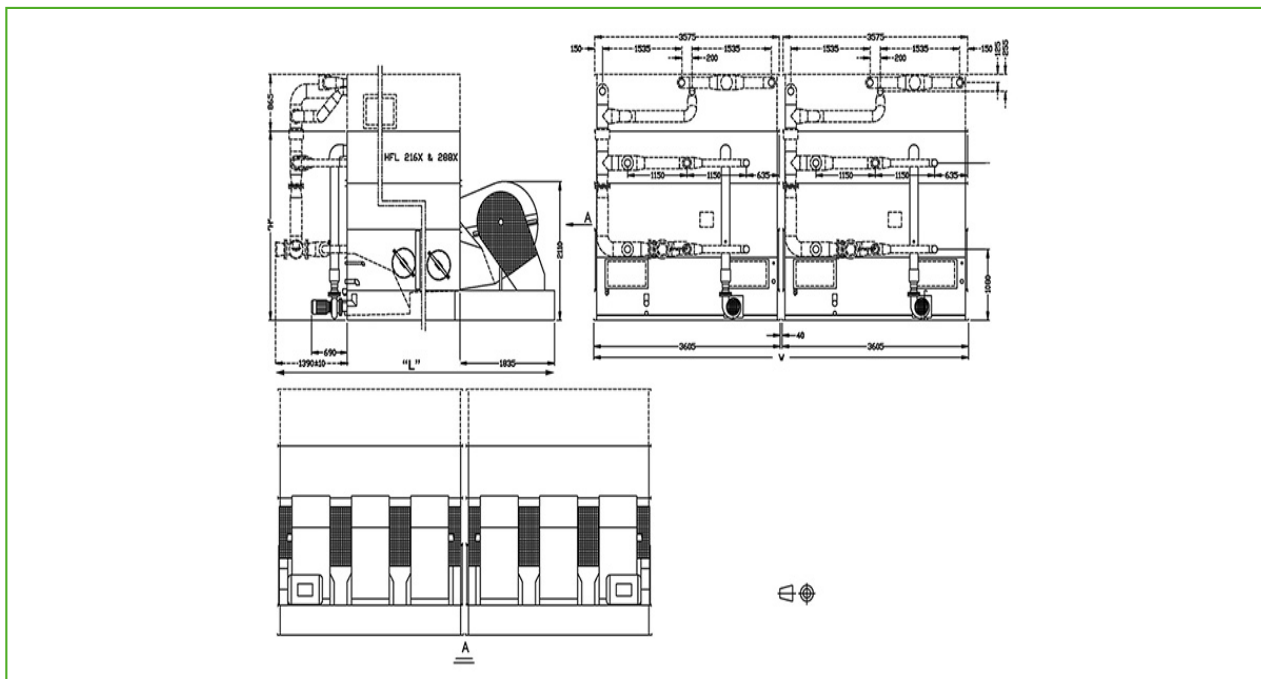
**REMARK:** Do not use for construction. Refer to factory certified dimensions & weights. This page includes data current at time of publication, which should be reconfirmed at the time of purchase. In the interests of product improvement, specifications, weights and dimensions are subject to change without notice.

### General notes

1. All connections 100 mm and smaller are MPT. Connections larger than 100 mm are beveled for welding.
2. Fan kW is for HFL units without FDC (0 Pa ESP) and in wet operation. To operate against external static pressure up to 125 Pa, consult your local BAC Balticare representative for size and location.
3. Airflow is for HFL units without FDC. For airflow of units equipped with the FDC consult your local BAC Balticare representative.
4. Unit height is indicative, for precise value refer to certified print.
5. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted.
6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

### HFL 216X-288X



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H				
HFL 2161-O	14560	10620	5310	4565	7250	2175	66.58	(2x) 22.0	53.8	(2x) 4.0
HFL 2161-P	14600	10660	5330	4565	7250	2175	73.84	(2x) 30.0	53.8	(2x) 4.0
HFL 2162-O	16500	12100	6050	4565	7250	2410	64.7	(2x) 22.0	53.8	(2x) 4.0
HFL 2162-P	16540	12140	6070	4565	7250	2410	71.74	(2x) 30.0	53.8	(2x) 4.0
HFL 2163-O	18820	13680	6840	4565	7250	2675	62.24	(2x) 22.0	53.8	(2x) 4.0
HFL 2163-P	18860	13720	6860	4565	7250	2675	69.02	(2x) 30.0	53.8	(2x) 4.0
HFL 2164-O	20680	15280	7640	4565	7250	2880	60.91	(2x) 22.0	53.8	(2x) 4.0
HFL 2164-P	20720	15320	7660	4565	7250	2880	67.54	(2x) 30.0	53.8	(2x) 4.0
HFL 2164-Q	20920	15520	7760	4565	7250	2880	72.42	(2x) 37.0	53.8	(2x) 4.0
HFL 2881-Q	17320	12680	6340	5485	7250	2175	81.34	(2x) 37.0	72.6	(2x) 4.0
HFL 2882-O	19540	14440	7220	5485	7250	2410	67.3	(2x) 22.0	72.6	(2x) 4.0
HFL 2882-P	19580	14480	7240	5485	7250	2410	74.62	(2x) 30.0	72.6	(2x) 4.0
HFL 2883-O	22160	16340	8170	5485	7250	2675	65.5	(2x) 22.0	72.6	(2x) 4.0
HFL 2883-P	22200	16380	8190	5485	7250	2675	72.62	(2x) 30.0	72.6	(2x) 4.0
HFL 2883-Q	22380	16580	8290	5485	7250	2675	77.88	(2x) 37.0	72.6	(2x) 4.0
HFL 2884-P	25070	18320	9160	5485	7250	2880	71.16	(2x) 30.0	72.6	(2x) 4.0
HFL 2884-Q	25270	18520	9260	5485	7250	2880	76.3	(2x) 37.0	72.6	(2x) 4.0

## Sound attenuation HS

## Closed circuit cooling towers

## Engineering data

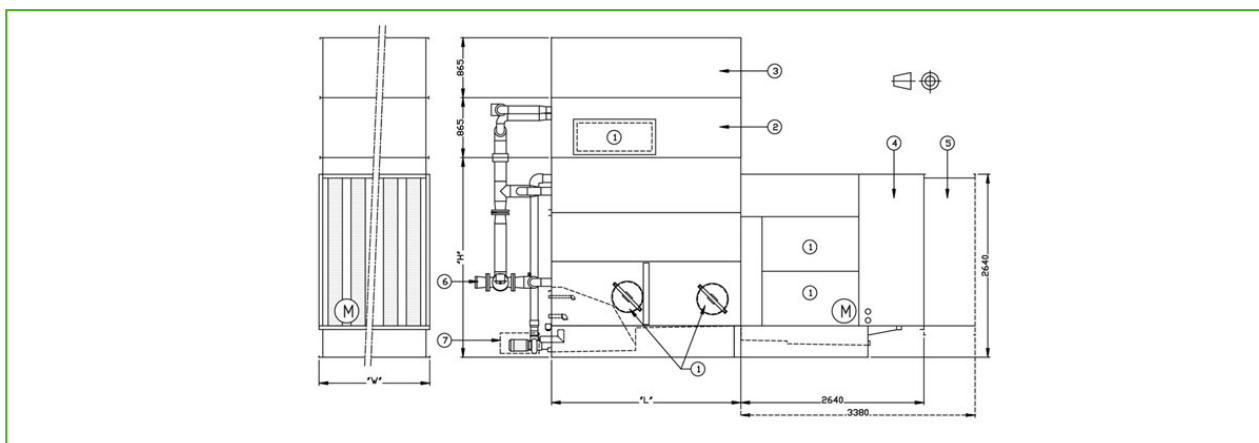
**REMARK:** Do not use for construction. Refer to factory certified dimensions & weights. This page includes data current at time of publication, which should be reconfirmed at the time of purchase. In the interests of product improvement, specifications, weights and dimensions are subject to change without notice.

## General notes

1. All connections 100 mm and smaller are MPT. Connections larger than 100 mm are beveled for welding.
2. Fan kW is for HFL units without FDC (0 Pa ESP) and in wet operation. To operate against external static pressure up to 125 Pa, consult your local BAC Balticare representative for size and location.
3. Airflow is for HFL units without FDC. For airflow of units equipped with the FDC consult your local BAC Balticare representative.
4. Unit height is indicative, for precise value refer to certified print.
5. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted.
6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

## Sound attenuation HS



1. Access; 2. FDC; 3. Discharge attenuator; 4. Intake attenuator HS; 5. Intake attenuator HD; 6. Three-way valve arrangement.





Model	Weight Sound Attenuator Without Plenum (kg)			Weight Sound Attenuator With Plenum (kg)		
	Intake	Discharge	Total	Intake	Discharge	Total
HFL 361-L	515	255	770	515	295	810
HFL 361-M	515	255	770	515	295	810
HFL 362-M	515	255	770	515	295	810
HFL 363-K	515	255	770	515	295	810
HFL 363-M	515	255	770	515	295	810
HFL 364-M	515	255	770	515	295	810
HFL 481-M	515	315	830	515	365	880
HFL 482-L	515	315	830	515	365	880
HFL 483-L	515	315	830	515	365	880
HFL 483-M	515	315	830	515	365	880
HFL 484-M	515	315	830	515	365	880
HFL 721-L	790	420	1210	790	465	1255
HFL 721-M	790	420	1210	790	465	1255
HFL 721-O	790	420	1210	790	465	1255
HFL 722-N	790	420	1210	790	465	1255
HFL 722-O	790	420	1210	790	465	1255
HFL 723-L	790	420	1210	790	465	1255
HFL 723-O	790	420	1210	790	465	1255
HFL 724-O	790	420	1210	790	465	1255
HFL 961-P	790	510	1300	790	565	1355
HFL 962-N	790	510	1300	790	565	1355
HFL 962-O	790	510	1300	790	565	1355
HFL 962-P	790	510	1300	790	565	1355
HFL 963-O	790	510	1300	790	565	1355
HFL 963-P	790	510	1300	790	565	1355
HFL 964-O	790	510	1300	790	565	1355
HFL 964-P	790	510	1300	790	565	1355
HFL 1081-O	1065	590	1655	1065	650	1715
HFL 1081-P	1065	590	1655	1065	650	1715
HFL 1082-O	1065	590	1655	1065	650	1715
HFL 1082-P	1065	590	1655	1065	650	1715
HFL 1083-O	1065	590	1655	1065	650	1715
HFL 1083-P	1065	590	1655	1065	650	1715
HFL 1084-O	1065	590	1655	1065	650	1715
HFL 1084-P	1065	590	1655	1065	650	1715
HFL 1084-Q	1065	590	1655	1065	650	1715
HFL 1441-Q	1065	715	1780	1065	785	1850
HFL 1442-O	1065	715	1780	1065	785	1850
HFL 1442-P	1065	715	1780	1065	785	1850
HFL 1443-O	1065	715	1780	1065	785	1850
HFL 1443-P	1065	715	1780	1065	785	1850
HFL 1443-Q	1065	715	1780	1065	785	1850
HFL 1444-O	1065	715	1780	1065	785	1850
HFL 1444-P	1065	715	1780	1065	785	1850
HFL 1444-Q	1065	715	1780	1065	785	1850
HFL 1501-L	1580	840	2420	1580	930	2510
HFL 1501-M	1580	840	2420	1580	930	2510
HFL 1501-O	1580	840	2420	1580	930	2510
HFL 1502-N	1580	840	2420	1580	930	2510
HFL 1502-O	1580	840	2420	1580	930	2510
HFL 1503-L	1580	840	2420	1580	930	2510
HFL 1503-O	1580	840	2420	1580	930	2510
HFL 1504-O	1580	840	2420	1580	930	2510
HFL 1921-P	1580	1020	2600	1580	1130	2710
HFL 1922-N	1580	1020	2600	1580	1130	2710
HFL 1922-O	1580	1020	2600	1580	1130	2710

HFL 1922-P	1580	1020	2600	1580	1130	2710
HFL 1923-O	1580	1020	2600	1580	1130	2710
HFL 1923-P	1580	1020	2600	1580	1130	2710
HFL 1924-P	1580	1020	2600	1580	1130	2710
HFL 2161-O	2130	1180	3310	2130	1300	3430
HFL 2161-P	2130	1180	3310	2130	1300	3430
HFL 2162-O	2130	1180	3310	2130	1300	3430
HFL 2162-P	2130	1180	3310	2130	1300	3430
HFL 2163-O	2130	1180	3310	2130	1300	3430
HFL 2163-P	2130	1180	3310	2130	1300	3430
HFL 2164-O	2130	1180	3310	2130	1300	3430
HFL 2164-P	2130	1180	3310	2130	1300	3430
HFL 2164-Q	2130	1180	3310	2130	1300	3430
HFL 2881-Q	2130	1430	3560	2130	1570	3700
HFL 2882-O	2130	1430	3560	2130	1570	3700
HFL 2882-P	2130	1430	3560	2130	1570	3700
HFL 2883-O	2130	1430	3560	2130	1570	3700
HFL 2883-P	2130	1430	3560	2130	1570	3700
HFL 2883-Q	2130	1430	3560	2130	1570	3700
HFL 2884-P	2130	1430	3560	2130	1570	3700
HFL 2884-Q	2130	1430	3560	2130	1570	3700

# Sound attenuation HD

## Closed circuit cooling towers

### Engineering data

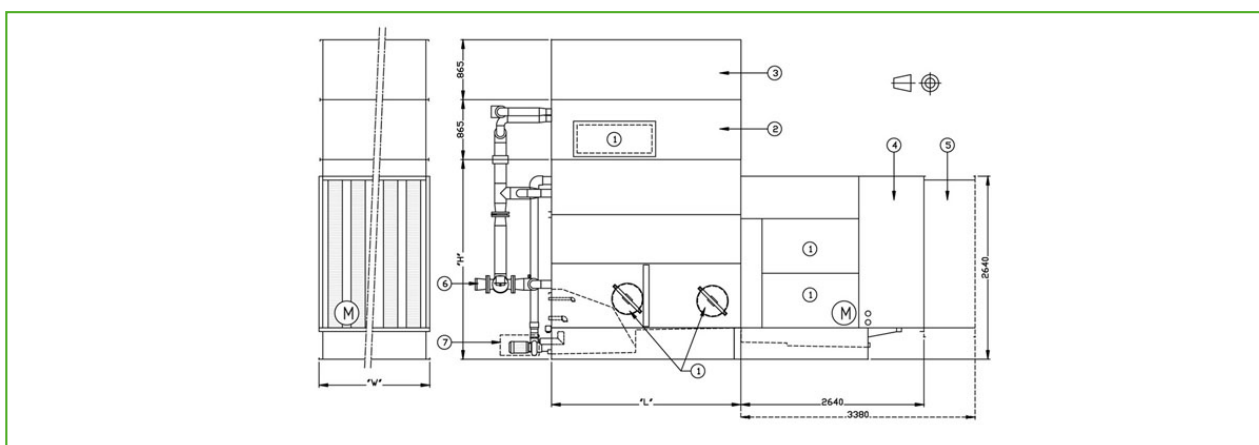
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### General notes

1. All connections 100 mm and smaller are MPT. Connections larger than 100 mm are beveled for welding.
2. Fan kW is for HFL units without FDC (0 Pa ESP) and in wet operation. To operate against external static pressure up to 125 Pa, consult your local BAC Balticare representative for size and location.
3. Airflow is for HFL units without FDC. For airflow of units equipped with the FDC consult your local BAC Balticare representative.
4. Unit height is indicative, for precise value refer to certified print.
5. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted.
6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

### Sound attenuation HD



1. Access; 2. FDC; 3. Discharge attenuator; 4. Intake attenuator HS; 5. Intake attenuator HD; 6. Three-way valve arrangement.



Model	Weight Sound Attenuator Without Plenum (kg)			Weight Sound Attenuator With Plenum (kg)		
	Intake	Discharge	Total	Intake	Discharge	Total
HFL 361-L	710	275	985	710	315	1025
HFL 361-M	710	275	985	710	315	1025
HFL 362-M	710	275	985	710	315	1025
HFL 363-K	710	275	985	710	315	1025
HFL 363-M	710	275	985	710	315	1025
HFL 364-M	710	275	985	710	315	1025
HFL 481-M	710	335	1045	710	385	1095
HFL 482-L	710	335	1045	710	385	1095
HFL 483-L	710	335	1045	710	385	1095
HFL 483-M	710	335	1045	710	385	1095
HFL 484-M	710	335	1045	710	385	1095
HFL 721-L	1105	455	1560	1105	500	1605
HFL 721-M	1105	455	1560	1105	500	1605
HFL 721-O	1105	455	1560	1105	500	1605
HFL 722-N	1105	455	1560	1105	500	1605
HFL 722-O	1105	455	1560	1105	500	1605
HFL 723-L	1105	455	1560	1105	500	1605
HFL 723-O	1105	455	1560	1105	500	1605
HFL 724-O	1105	455	1560	1105	500	1605
HFL 961-P	1105	550	1655	1105	605	1710
HFL 962-N	1105	550	1655	1105	605	1710
HFL 962-O	1105	550	1655	1105	605	1710
HFL 962-P	1105	550	1655	1105	605	1710
HFL 963-O	1105	550	1655	1105	605	1710
HFL 963-P	1105	550	1655	1105	605	1710
HFL 964-O	1105	550	1655	1105	605	1710
HFL 964-P	1105	550	1655	1105	605	1710
HFL 1081-O	1520	640	2160	1520	700	2220
HFL 1081-P	1520	640	2160	1520	700	2220
HFL 1082-O	1520	640	2160	1520	700	2220
HFL 1082-P	1520	640	2160	1520	700	2220
HFL 1083-O	1520	640	2160	1520	700	2220
HFL 1083-P	1520	640	2160	1520	700	2220
HFL 1084-O	1520	640	2160	1520	700	2220
HFL 1084-P	1520	640	2160	1520	700	2220
HFL 1084-Q	1520	640	2160	1520	700	2220
HFL 1441-Q	1520	770	2290	1520	840	2360
HFL 1442-O	1520	770	2290	1520	840	2360
HFL 1442-P	1520	770	2290	1520	840	2360
HFL 1443-O	1520	770	2290	1520	840	2360
HFL 1443-P	1520	770	2290	1520	840	2360
HFL 1443-Q	1520	770	2290	1520	840	2360
HFL 1444-O	1520	770	2290	1520	840	2360
HFL 1444-P	1520	770	2290	1520	840	2360
HFL 1444-Q	1520	770	2290	1520	840	2360
HFL 1501-L	2210	910	3120	2210	1000	3210
HFL 1501-M	2210	910	3120	2210	1000	3210
HFL 1501-O	2210	910	3120	2210	1000	3210
HFL 1502-N	2210	910	3120	2210	1000	3210
HFL 1502-O	2210	910	3120	2210	1000	3210
HFL 1503-L	2210	910	3120	2210	1000	3210
HFL 1503-O	2210	910	3120	2210	1000	3210
HFL 1504-O	2210	910	3120	2210	1000	3210
HFL 1921-P	2210	1100	3310	2210	1210	3420
HFL 1922-N	2210	1100	3310	2210	1210	3420
HFL 1922-O	2210	1100	3310	2210	1210	3420

HFL 1922-P	2210	1100	3310	2210	1210	3420
HFL 1923-O	2210	1100	3310	2210	1210	3420
HFL 1923-P	2210	1100	3310	2210	1210	3420
HFL 1924-P	2210	1100	3310	2210	1210	3420
HFL 2161-O	3040	1280	4320	3040	1400	4440
HFL 2161-P	3040	1280	4320	3040	1400	4440
HFL 2162-O	3040	1280	4320	3040	1400	4440
HFL 2162-P	3040	1280	4320	3040	1400	4440
HFL 2163-O	3040	1280	4320	3040	1400	4440
HFL 2163-P	3040	1280	4320	3040	1400	4440
HFL 2164-O	3040	1280	4320	3040	1400	4440
HFL 2164-P	3040	1280	4320	3040	1400	4440
HFL 2164-Q	3040	1280	4320	3040	1400	4440
HFL 2881-Q	3040	1540	4580	3040	1680	4720
HFL 2882-O	3040	1540	4580	3040	1680	4720
HFL 2882-P	3040	1540	4580	3040	1680	4720
HFL 2883-O	3040	1540	4580	3040	1680	4720
HFL 2883-P	3040	1540	4580	3040	1680	4720
HFL 2883-Q	3040	1540	4580	3040	1680	4720
HFL 2884-P	3040	1540	4580	3040	1680	4720
HFL 2884-Q	3040	1540	4580	3040	1680	4720

# Sound attenuation VS

## Closed circuit cooling towers

### Engineering data

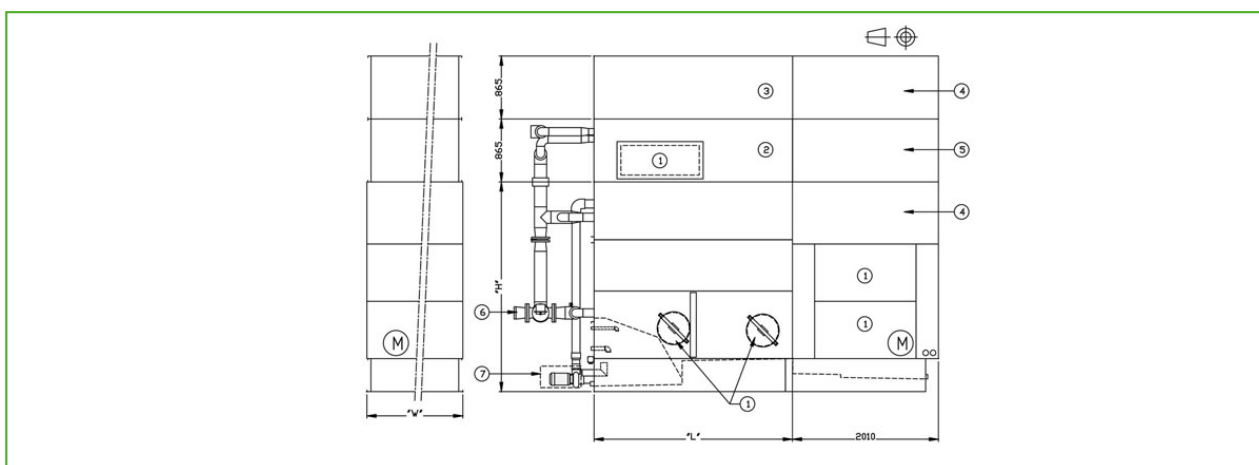
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3. Airflow is for HFL units without FDC. For airflow of units equipped with the FDC consult your local BAC Balticare representative.
4. Unit height is indicative, for precise value refer to certified print.
5. Shipping/operating weights indicated are for units without accessories such as sound attenuators, discharge hoods, etc. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted.
6. The weights for the 3-way-valve arrangement are the maximum weights.

**Last update:** 01/07/2021

### Sound attenuation VS



1. Access; 2. FDC; 3. Discharge attenuator; 4. Intake attenuator VS; 5. Intake plenum VS; 6. Three-way valve arrangement.



Model	Weight Sound Attenuator Without Plenum (kg)			Weight Sound Attenuator With Plenum (kg)		
	Intake	Discharge	Total	Intake	Discharge	Total
HFL 361-L	0	880	880	0	855	855
HFL 361-M	0	880	880	0	855	855
HFL 362-M	0	880	880	0	855	855
HFL 363-K	0	880	880	0	855	855
HFL 363-M	0	880	880	0	855	855
HFL 364-M	0	880	880	0	855	855
HFL 481-M	0	965	965	0	950	950
HFL 482-L	0	965	965	0	950	950
HFL 483-L	0	965	965	0	950	950
HFL 483-M	0	965	965	0	950	950
HFL 484-M	0	965	965	0	950	950
HFL 721-L	0	1330	1330	0	1300	1300
HFL 721-M	0	1330	1330	0	1300	1300
HFL 721-O	0	1330	1330	0	1300	1300
HFL 722-N	0	1330	1330	0	1300	1300
HFL 722-O	0	1330	1330	0	1300	1300
HFL 723-L	0	1330	1330	0	1300	1300
HFL 723-O	0	1330	1330	0	1300	1300
HFL 724-O	0	1330	1330	0	1300	1300
HFL 961-P	0	1435	1435	0	1415	1415
HFL 962-N	0	1435	1435	0	1415	1415
HFL 962-O	0	1435	1435	0	1415	1415
HFL 962-P	0	1435	1435	0	1415	1415
HFL 963-O	0	1435	1435	0	1415	1415
HFL 963-P	0	1435	1435	0	1415	1415
HFL 964-O	0	1435	1435	0	1415	1415
HFL 964-P	0	1435	1435	0	1415	1415
HFL 1081-O	0	1830	1830	0	1800	1800
HFL 1081-P	0	1830	1830	0	1800	1800
HFL 1082-O	0	1830	1830	0	1800	1800
HFL 1082-P	0	1830	1830	0	1800	1800
HFL 1083-O	0	1830	1830	0	1800	1800
HFL 1083-P	0	1830	1830	0	1800	1800
HFL 1084-O	0	1830	1830	0	1800	1800
HFL 1084-P	0	1830	1830	0	1800	1800
HFL 1084-Q	0	1830	1830	0	1800	1800
HFL 1441-Q	0	1980	1980	0	1955	1955
HFL 1442-O	0	1980	1980	0	1955	1955
HFL 1442-P	0	1980	1980	0	1955	1955
HFL 1443-O	0	1980	1980	0	1955	1955
HFL 1443-P	0	1980	1980	0	1955	1955
HFL 1443-Q	0	1980	1980	0	1955	1955
HFL 1444-O	0	1980	1980	0	1955	1955
HFL 1444-P	0	1980	1980	0	1955	1955
HFL 1444-Q	0	1980	1980	0	1955	1955
HFL 1501-L	0	2660	2660	0	2600	2600
HFL 1501-M	0	2660	2660	0	2600	2600
HFL 1501-O	0	2660	2660	0	2600	2600
HFL 1502-N	0	2660	2660	0	2600	2600
HFL 1502-O	0	2660	2660	0	2600	2600
HFL 1503-L	0	2660	2660	0	2600	2600
HFL 1503-O	0	2660	2660	0	2600	2600
HFL 1504-O	0	2660	2660	0	2600	2600
HFL 1921-P	0	2870	2870	0	2830	2830
HFL 1922-N	0	2870	2870	0	2830	2830
HFL 1922-O	0	2870	2870	0	2830	2830



HFL 1922-P	0	2870	2870	0	2830	2830
HFL 1923-O	0	2870	2870	0	2830	2830
HFL 1923-P	0	2870	2870	0	2830	2830
HFL 1924-P	0	2870	2870	0	2830	2830
HFL 2161-O	0	3660	3660	0	3600	3600
HFL 2161-P	0	3660	3660	0	3600	3600
HFL 2162-O	0	3660	3660	0	3600	3600
HFL 2162-P	0	3660	3660	0	3600	3600
HFL 2163-O	0	3660	3660	0	3600	3600
HFL 2163-P	0	3660	3660	0	3600	3600
HFL 2164-O	0	3660	3660	0	3600	3600
HFL 2164-P	0	3660	3660	0	3600	3600
HFL 2164-Q	0	3660	3660	0	3600	3600
HFL 2881-Q	0	3960	3960	0	3910	3910
HFL 2882-O	0	3960	3960	0	3910	3910
HFL 2882-P	0	3960	3960	0	3910	3910
HFL 2883-O	0	3960	3960	0	3910	3910
HFL 2883-P	0	3960	3960	0	3910	3910
HFL 2883-Q	0	3960	3960	0	3910	3910
HFL 2884-P	0	3960	3960	0	3910	3910
HFL 2884-Q	0	3960	3960	0	3910	3910