

# HXC

## Refrigerant condensers



### Key benefits

- Maximum water saving
- No plume
- Reduced refrigerant charge

#### HXC characteristics

Combined flow, axial fan, induced draft  
Hybrid wet-dry cooling

#### Capacity range

550 - 1900 kW  
(for single cell models, nominal R717 kW's)

#### Maximum entering fluid temperature

82°C

#### Typical applications

- Industrial refrigeration applications
- Water saving requirements
- Plume reduction requirements



## Water-saving

- [Different operating modes](#) throughout the year. In summer peak periods HXC operates as an evaporative condenser. In other periods **modulating air inlet dampers** increase the air flow boosting the dry condensing capacity and saving water. In winter time dry operation is possible.

## No plume

- The combination of sensible, adiabatic and evaporative heat transfer reduces any plume.
- In winter time, **HXC operates dry**.
- No plume during wet operation thanks to **dry finned coil**: it reduces humidity of discharge air from the prime surface coil.

## Reduced refrigerant charge

- **Less coil surface** (because of the patented combined heat transfer system) means less refrigerant charge and reduced overall system costs.

## Easy to inspect and to maintain

- **Inspect and maintain safely** HXC condensers with unrivalled comfort, while **standing** inside.
- The HXC has a **spacious plenum** (internal area) and easy inspection/maintenance access.
- **Access via large hinged door to internal walkway**: no basin draining needed for unit interior inspection.
- Easy to inspect the **coil** during operation from the outside or from the inside via the **removable drift eliminator modules**.
- Easy to inspect the **fill** from the inside and via the **removable combined inlet shields** from the outside.
- The patented [Bacross fill](#) sheets reduce fouling, allowing an easy inspection of the fill core without dismantling. Optional [BACross fill bundles](#) for quick and easy removal and cleaning of the fill.
- Self-cleaning cold water basin and fill above **sloped basin** to flush out dirt and debris.
- Removable **suction strainer** anti-vortex hood.
- Make-up, drain and overflow easily **accessible from the outside** for inspection and cleaning.

## Energy-saving

- [Evaporative cooling](#) PLUS unique [combined heat transfer system](#) for minimized system-wide energy consumption.
- **Axial fan** – half the consumption of rivals and huge single cell capacity: saving you more!
- Less water usage = less water costs = **less water treatment expenses**

## Flexible operation

- **Unique and patented heat transfer system**: featuring combined flow via heat exchange coil and fill



- pack, for fine temperature applications and thermal challenges.
- Various corrosion-resistant materials, including the unique [Baltibond hybrid coating](#) for guaranteed long service life.
  - **Single air inlet and discharge**, fits in most enclosures.

### Maximum operational safety

- Easy-clean and easy-inspect HXC units **reduce hygiene risks** from bacteria or biofilm inside.
- **Combined inlet shields** block sunlight to prevent biological growth in the tower, filter the air and stop water splashing outside.
- The patented [BACross fill](#) reduces fouling.
- **Drift eliminators** certified by Eurovent, to prevent droplets escaping into the air.

**Want to use the HXC hybrid condenser for your industrial refrigeration application?** Contact your local [BAC representative](#) for more information.

## Downloads

- [HXC hybrid condenser](#)
- [HXC Intelligent hybrid condenser - brochure](#)
- [Operating and Maintenance HXC](#)
- [Rigging and Installation HXC](#)
- [Combined Flow Technology](#)

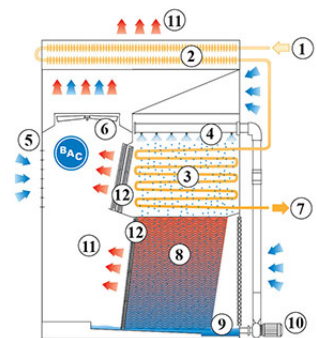
# Principle of operation

## Refrigerant condensers

### Principle of operation

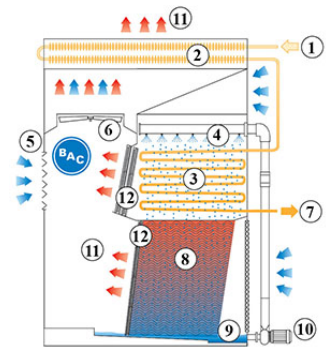
#### Operation 1

The **vapour (1)** passes first through the **dry finned coil (2)** and then enters the **prime surface coil (3)**, which is wetted by a **spray system (4)**. When the **dampers (5)** are **closed** an **axial fan (6)** draws air over the prime surface coil in parallel with the water spray flow. The evaporation process condenses the vapour into **liquid (7)**. The spray water falls onto a **fill pack (8)** where it is cooled before falling into the sloping **water basin (9)** or sump. The **spray pump (10)** recirculates the cooled water to the spray system. The **warm saturated air (11)** leaves the tower through the **drift eliminators (12)** over the dry finned coil where it picks up additional sensible heat.



## Operation 2

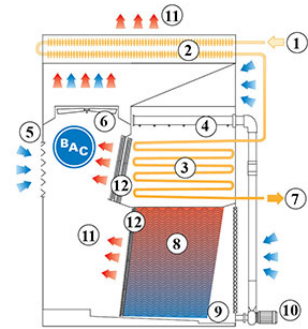
If the ambient temperature is below the condensing temperature, the **dampers** will modulate **open**. The air flow increases and air distribution shifts, so that less air is drawn over the prime surface coil and fill pack. This enhances the sensible heat transfer and further reduces the water consumption.





## Operation 3

Complete **dry operation** is possible when **switching off the spray pump**.



Want to use the HXC condenser? Contact your local [BAC representative](#) for more information.

## Downloads

- [Combined Flow Technology](#)

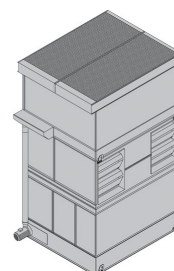
# Construction details

## Refrigerant condensers

### 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

Unique and patented heat transfer system: **featuring combined flow** via heat exchange coils and fill pack.

##### Prime surface coil

- **The prime surface coil** is constructed of continuous length of prime surface steel, hot-dip galvanized after fabrication.
- Designed for maximum 23 bar operating pressure according to PED. Pneumatically tested at 34 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.



Try our HXC coil options:

- **Multiple circuit coils (split coils)** for your halocarbon refrigerants,



maintaining individual compressor systems. Or use it for compressor jacket water or glycol cooling.

- **Stainless steel coils** are in type 304L or 316L.
- **High pressure coils** are designed for 28 bar operating pressure and pneumatically tested for 40 bar. Hot-dip galvanized after fabrication.

All coils are designed for low pressure drop with sloping tubes for free drainage of fluid.

#### **Finned coil**

- The 6-row **dry finned coil** is constructed of stainless steel 304L in a staggered triangle tube arrangement and with pre-coated aluminium high density fins.
- Designed for maximum 23 bar operating pressure according to PED.

#### **Fill**

- The patented and factory-tested [BACross fill](#) with integrated **drift eliminators** certified by Eurovent. Optional [BACross fill bundles](#) with handles for quick and easy removal and cleaning of the fill. The bundle includes individual **sheets** which are easy to dismantle for inspection and cleaning, eliminating the need for frequent fill replacement.
- In self-extinguishing **plastic**, which will not rot, decay or decompose.
- For operation above 50°C, try our **optional high temperature fill**, usable with spray water up to 55°C.



### 3. Air movement system

- **HXC fan system** features two corrosion resistant sheaves, belt and motor. Together with the heavy duty fan shaft bearings and the BAC **Impervix** motor, this guarantees optimal and year-round operational efficiency.
- **Low kW and noise axial fan(s)** in corrosion resistant aluminum, encased in fan cylinder.
- **Modulating air inlet dampers** are constructed in galvanised steel with air-tight, opposed blade design and proportional modulation through beams.
- **Air flow control package** includes a pressure transmitter (ships loose for on-site installation), damper actuators and intelligent damper controllers.
- Our **drift eliminators** in the coil section 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 coil access.
- Easy removable UV-resistant plastic **combined inlet shields** at air inlet. Sunlight block to prevent biological growth in tower, air filter and water splash-out stop.



### 4. Water distribution system

These consist of:

- **Spray branches** with wide non-clog, plastic, 360° distribution nozzles secured in grommets. Overlapping spray pattern for complete coil wetting.
- A **sloped cold water basin** with large hinged and inward swinging **access** door and **internal walkway**.
- Anti-vortexing **strainers** and **make up** both easily accessible from air inlet side.
- Close coupled, bronze fitted centrifugal **spray pump** with totally enclosed fan cooled (TEFC) motor. Bleed line with metering valve installed from pump discharge to overflow.



**Need more information?** Contact your local [BAC representative](#).

# Options and accessories

## Refrigerant condensers

### Options and accessories

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



#### BACross bundles

For even easier **dismantling and cleaning** of the BACross fill sheets, choose fill bundles with support handles.



#### 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.



## Electric water level control package

For **perfectly precise water level control**, replace the standard mechanical valve with our electrical water level controller.



## Platforms

To inspect and maintain from the top of the unit more **easily** and **safely**, platforms can be installed.



## Internal service platform

An internal platform helping you **access the unit top inside** and safely inspect your condenser.



## Extended lubrication lines

Extended lubrication lines with easily accessible grease fittings can be used **to lubricate** fan shaft bearings.



## Safety switch

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



## Standby pump

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



## Vibration cut out switch

When excessive vibration occurs, this switch shuts down the fan, ensuring your cooling equipment **operates safely**.



## Water treatment equipment

Devices to control water treatment are needed to ensure proper **condenser 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.



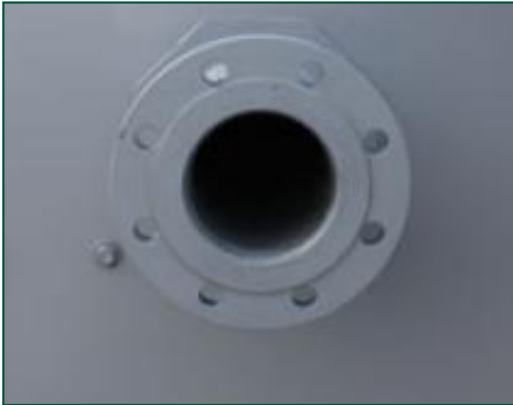
## Filter

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.



## Sump sweeper piping

Sump sweeper piping **prevents sediment collecting in the cold water basin** of the unit. A complete piping system, including nozzles, is installed in the basin of the condenser **for connection to side stream filtration** equipment.



## Flanges

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





# Special needs?

## Refrigerant condensers

### Special needs?

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

### Year-round reliable operation

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

- [Remote sump connection](#)
- [Water treatment equipment](#)
- [Sump sweeper piping](#)
- [Filters](#)
- [Platforms](#)
- [Internal service platform](#)
- [Vibration cut out switch](#)
- [Basin heater package](#)
- [Safety switch](#)
- [Standby pump](#)
- [Electric water level control package](#)
- [Baltibond hybrid coating](#)



## Enhanced hygiene and water care

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

- [Remote sump connection](#)
- [BACross bundles](#)
- [Water treatment equipment](#)
- [Sump sweeper piping](#)
- [Filters](#)
- [Baltibond hybrid coating](#)

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.

## 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](#)
- [Baltibond hybrid coating](#)

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



# HXC 131-193

## Refrigerant condensers

### Engineering data

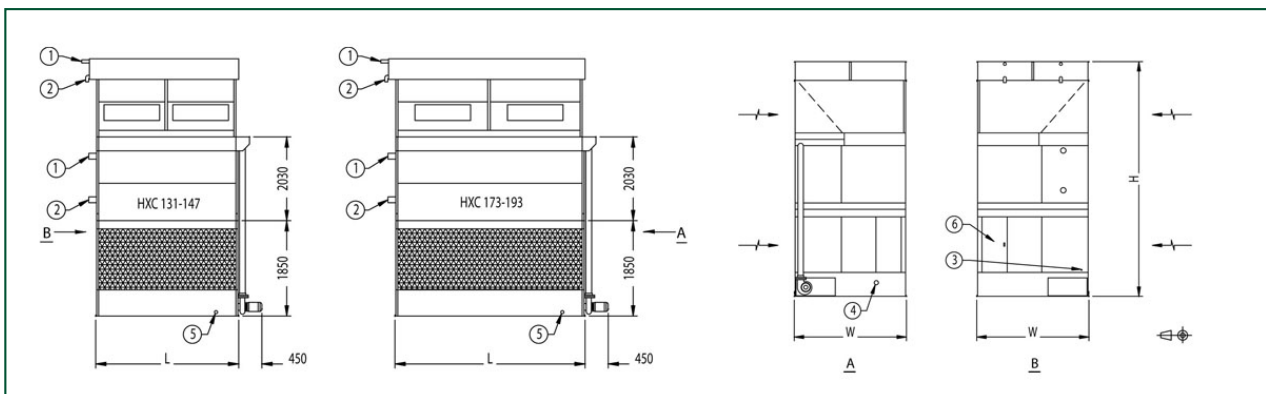
**Remark:** Do not use for construction. Refer to factory certified dimensions & weights. This page includes data current at time of publication, which should be reconfirmed at the time of purchase. In the interest of product improvement, specifications, weights and dimensions are subject to change without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

### General notes

1. Dimensional drawings show standard (right hand) arrangement can be furnished by special order.
2. Coil connection locations are approximate. Dimensions should not be used for prefabrication on the connecting piping. All coil connections are beveled for welding.
3. Shipping/ operating weights indicated are for units without accessories such as sound attenuators, discharge hoods ect. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted. Operating weight shown in tables is based on total unit weight of refrigerant operating charge and basin filled to overflow level.
4. The units will be delivered in 3 different pieces, upper, middle and lower section.

**Last update:** 01/06/2023

### HXC 131-193



1. Refrigerant in; 2. Refrigerant out; 3. Make up ND15; 4. Overflow ND80; Drain ND50; 6. Access door.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	Inlet/Outlet Coil Connections (mm)		R717 charge (kg)	
	Oper. Weight (kg)	Ship. Weight (kg)	Heaviest Section (kg)	L	W	H					Prime Surface Coil	Finned Coil	Prime Surface Coil	Finned Coil
HXC 131	5772	4172	2160	2775	2385	5397	19.61	(2x) 5.5	18.3	(1x) 2.2 kW - 3000 RPM	(1x) 100	(2x) 100	46.0	10.0
HXC 147	6032	4402	2390	2775	2385	5397	19.14	(2x) 5.5	18.3	(1x) 2.2 kW - 3000 RPM	(1x) 100	(2x) 100	57.0	10.0
HXC 173	7299	5155	2620	3690	2385	5397	26.1	(2x) 7.5	31.5	(1x) 2.2 kW - 3000 RPM	(1x) 100	(2x) 100	61.0	14.0
HXC 193	7639	5455	2920	3690	2385	5397	25.53	(2x) 7.5	31.5	(1x) 2.2 kW - 3000 RPM	(1x) 100	(2x) 100	76.0	14.0

# HXC 214-288

## Refrigerant condensers

### Engineering data

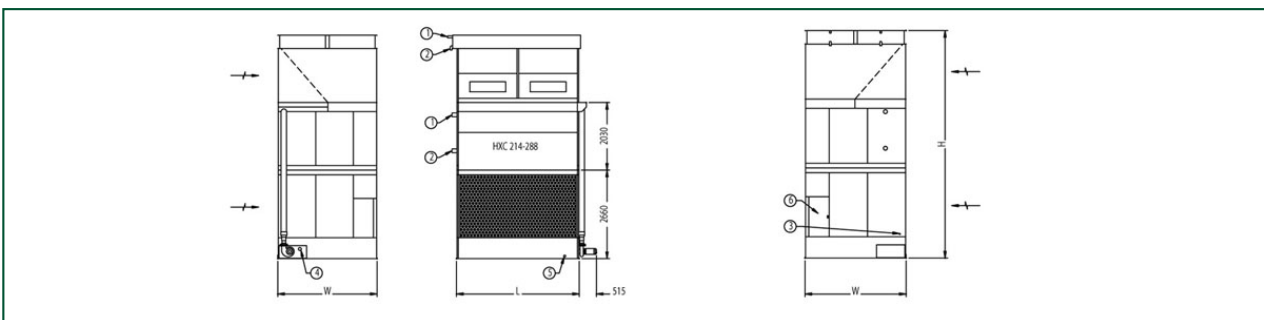
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3. Shipping/ operating weights indicated are for units without accessories such as sound attenuators, discharge hoods ect. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted. Operating weight shown in tables is based on total unit weight of refrigerant operating charge and basin filled to overflow level.
4. The units will be delivered in 3 different pieces, upper, middle and lower section.

**Last update:** 01/06/2023

### HXC 214-288



1. Refrigerant in; 2. Refrigerant out; 3. Make up ND25; 4. Overflow ND80; 5. Drain ND50; 6. Access door.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	Inlet/Outlet Coil Connections (mm)		R717 charge (kg)	
	Oper. Weight (kg)	Ship. Weight (kg)	Heaviest Section (kg)	L	W	H					Prime Surface Coil	Finned Coil	Prime Surface Coil	Finned Coil
HXC 214	8626	6200	2840	3690	2985	6717	35.13	(2x) 11.0	45.1	(1x) 4.0 kW - 1500 RPM	(1x) 100	(2x) 100	69.0	16.0
HXC 258	9136	6640	3280	3690	2985	6717	34.7	(2x) 11.0	45.1	(1x) 4.0 kW - 1500 RPM	(1x) 100	(2x) 100	91.0	16.0
HXC 288	9636	7080	3720	3690	2985	6717	33.74	(2x) 11.0	45.1	(1x) 4.0 kW - 1500 RPM	(1x) 100	(2x) 100	114.0	16.0
HXC 379	13355	9601	4740	5520	2985	6856	52.89	(3x) 11.0	56.8	(1x) 5.5 kW - 3000 RPM	(1x) 100	(2x) 100	136.0	24.0
HXC 424	14125	10271	5410	5520	2985	6856	51.4	(3x) 11.0	56.8	(1x) 5.5 kW - 3000 RPM	(1x) 100	(2x) 100	170.0	24.0



# HXC 309-468

## Refrigerant condensers

### Engineering data

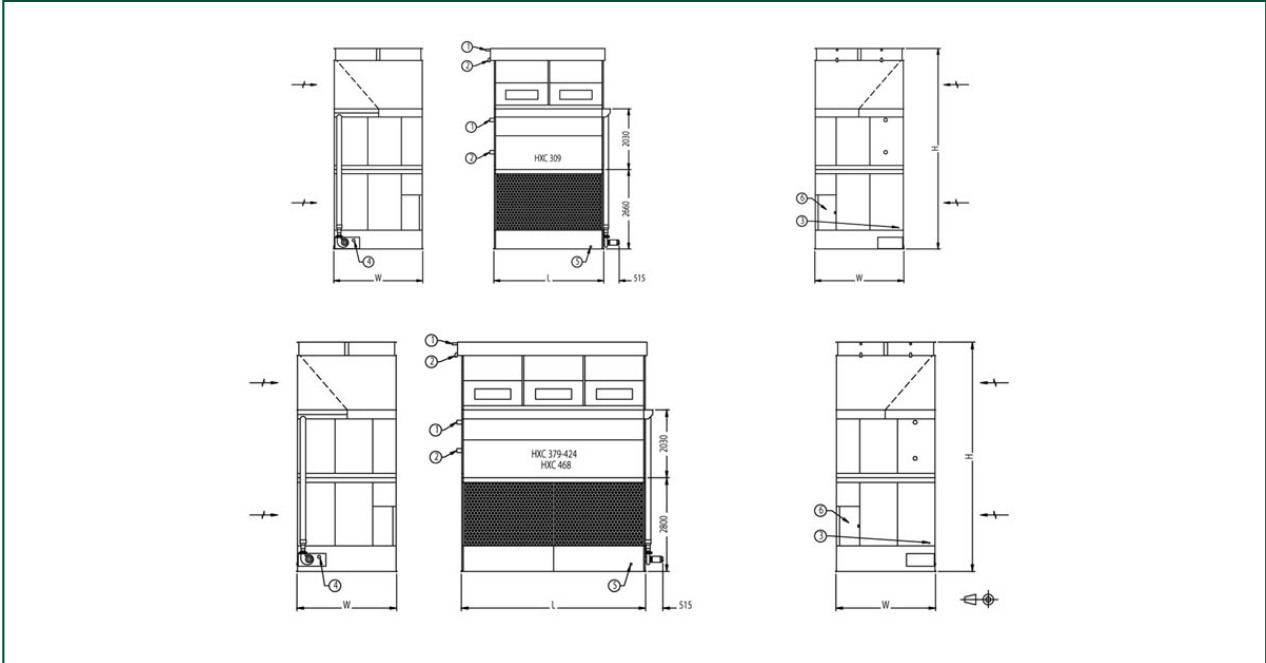
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### General notes

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2. Coil connection locations are approximate. Dimensions should not be used for prefabrication on the connecting piping. All coil connections are beveled for welding.
3. Shipping/ operating weights indicated are for units without accessories such as sound attenuators, discharge hoods ect. Consult factory certified prints to obtain weight additions and the heaviest section to be lifted. Operating weight shown in tables is based on total unit weight of refrigerant operating charge and basin filled to overflow level.
4. The units will be delivered in 3 different pieces, upper, middle and lower section.

**Last update:** 01/06/2023

### HXC 309-468



1. Refrigerant in; 2. Refrigerant out; 3. Make up ND15; 4. Overflow ND80; Drain ND50; 6. Access door.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m³/s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	Inlet/Outlet Coil Connections (mm)		R717 charge (kg)	
	Oper. Weight (kg)	Ship. Weight (kg)	Heaviest Section (kg)	L	W	H					Prime Surface Coil	Finned Coil	Prime Surface Coil	Finned Coil
HXC 309 (obsolete - 9kW motors)	11016	7798	4010	3690	3610	6856	36.4	(2x) 9.0	45.1	(1x) 4.0	(1x) ND 100	(2x) 100	123.0	18.0
HXC 468	16201	11341	5850	5520	3610	6996	56.53	(3x) 11.0	56.8	(1x) 5.5	(1x) ND 100	(2x) 100	182.0	28.0

# Sound attenuation

## Refrigerant condensers

### Engineering data

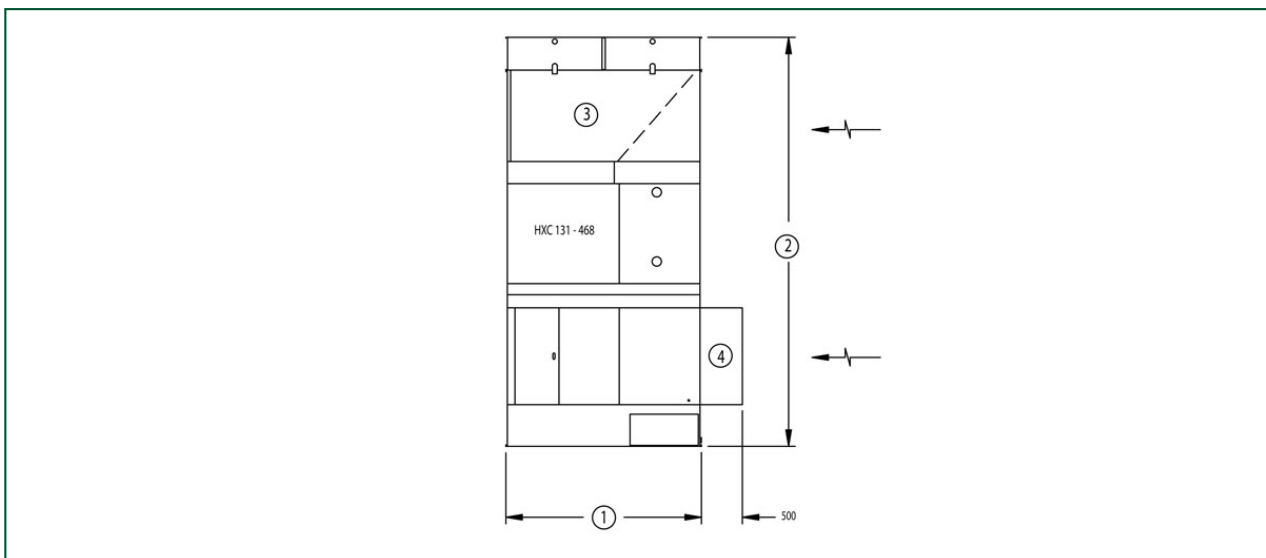
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4. The units will be delivered in 3 different pieces, upper, middle and lower section.

**Last update:** 01/06/2023

### Sound attenuation



1. Unit width; 2. Unit height; 3. Insulated plenum; 4. Intake attenuator.





Model	Weight Sound Attenuator (kg)
HXC 131	130
HXC 173	175
HXC 214	250
HXC 258	250
HXC 379	375